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To the Editors of the Medical and Physical Jour

FAS EST AB HOSTE DOCERI.

GENTLEMEN,

THE enclosed Instructions on the means of maintain ing the salubrity and purifying the air of the wards o hospitals, applicable also to large assemblages of people in courts of justice, playhouses, &c. drawn up by the French Council of Health in the year 1795, appear to me to hold out a promise of infinite utility at the present moment, when a regard to our preservation and defence has assem bled such powerful fleets and armies, the valuable mem bers of which are exposed, among other perils, to the calamities it is the object of these instructions to avert. You will find them to contain several important observations on the employment of the gases, in destroying contagion, a subject which has been rendered more than usually interesting by a late award of the British parliament.

I am, &c.

Pentonville, Dec. 19, 1803. S. J.

INSTRUCTIONS ON THE MEANS OF MAINTAINING THE SALUBRITY AND PURIFYING THE AIR OF THE WARDS OF HOSPITALS AND CROWDED ASSEMBLIES.

[With an Engraving.]

Means of Cleanliness.

CLEANLINESS, which is so essential under all the circumstances of life, is the most powerful corrective of the local defects of salubrity, and ought therefore to constitute the principal object of the attention of all hospital agents. Professional men, whose duty it more particularly is to enforce a strict observance of every necessary precaution, should endeavour to convince the sick of the di-

uence which cleanliness has on the complete and e-establishment of their health. Persuasion has a l effect on men, when it is founded on the opinion interest that is taken in their health and preserva- The regulations which follow are, for the greater pplicable not merely to hospitals but to prisons, and, ral, to all establishments where many individuals, in a healthy, and others in a diseased state, may be ded together.

s soon as the sick are brought into the hospital, their ds and feet should be washed in warm water.

The utensils destined for their different uses ought to be equently washed.

The foul linen should be carried to the most airy part of the building, and there suspended on solid poles, without being heaped together, until the time arrives when it is to be washed. The pieces of linen which may have been employed in the dressing of wounds, &c. ought to be constantly collected in baskets, and steeped in water till they can be washed out in a strong lie.

The great coats and blankets should be beaten and brushed from time to time, and afterwards fumigated with burning sulphur. They ought to be sent to the oven at least once a year.

The wool belonging to the mattrasses should be beaten and carded, as far as it is practicable, every six months. Their coverings, and those belonging to the straw mattrasses, ought to be frequently and effectually washed in lie.

The bathing tubs, if wood be the material employed, should be painted and varnished both within and without.

In each of the wards vessels filled with water should be placed, and their contents frequently renewed.

The vinegar, which it has been the practice to bestow uselessly on fumigations, should be mixed with water, and employed in gargles, or in sprinkling the floors of the wards, before they are swept.

The walls and cielings of the wards ought to be white-washed at least once a year; and the bedsteads, window frames, tables, and even planks, washed with lime-water, or with a strong alkaline lie.

The articles of clothing, &c. belonging to the hospital, which may have been worn by a patient labouring under a contagious disease, should not be again employed, until after they have been sweetened by the means which will be pointed out in the sequel.

Each

Each of the lamps ought to be provided with a conductor, to facilitate the escape of the smoke withoutside.

The number of the beds contained in each ward ought to be irrevocably fixed, and inscribed over the door. It ought to be governed by the extent, form, elevation, and disposition of the ward, in such a way as that, in a ward the cieling of which may have an elevation of from ten to twelve feet, the beds should be stationed at least two feet from each other. If it should have an elevation of nine feet only, the space ought to be augmented to two feet and a half. Between each of the beds and the wall, a space of from two to three feet ought to be allowed. Whatever the extent of the ward may be, ranges of beds ought in no case to be allowed in the centre.

The patients should not be suffered to pass reciprocally to and from the wards in which contagious diseases are prevalent.

In the vicinity of the wards, or of the hospital, neither stagnant water, heaps of dung, nor any vegetable or animal substances in a decomposed state ought to be allowed.

Close-stools should be constantly provided in such numbers as that those in use may be instantly replaced whenever necessity may require. They ought not, however, to be allowed unless to the patients who are dangerously ill. Water should be constantly kept in these utensils, the seat of which ought to be carefully washed from time to time. They should be covered, both without and within, with a thick layer of drying oil.

The improper position of the necessaries, in the greater part of the hospitals, is one of the most direct causes of the disagreeable smell which strikes the organs on entering. Notwithstanding an attempt has been made, in several places, to cleanse them and drain off their contents, by the means of a current water, still it frequently happens that the water has not a sufficent impulsive force for this purpose, while in other cases it is not to be procured. Another very common defect consists in the doors of the necessaries not being provided with weights withinside, that may enable them to shut of themselves. It very seldom occurs that the expedient has been resorted to of forming, between them and the wards, an intermediate vestibule with transverse and corresponding windows, calculated to renew the air constantly, and to intercept the communication of the smell. These precautions are, however, best calculated to diminish the influence of the infection which is exhaled from the vicinity of the necessaries. It would perhaps be

 possible

possible to remedy this inconvenience by removing the pits, or cavities, to a distance of at least six feet from the walls; and by constructing, on each floor of the building, a privy to which the patients may repair by a slight but sufficiently solid gallery. In each of these privies there should be five or six seats placed circularly over the pits.

The seats of the necessaries ought to be washed daily; and this article of cleanliness should be made a very strict regulation of police.

Mechanical Means.

The best mode of preventing, or correcting, the bad qualities contracted by the air in the wards of hospitals, is to introduce it from without, at the same time that an outlet is afforded to that which has been vitiated by the respiration, and by the emanations from the sick, more particularly when they are crouded together in too circumscribed a space.

When fires are kept, the chimnies have this double effect; but as every part of a ward cannot be heated by the means of fire places, so as to satisfy the sick, and as the local circumstances do not always admit of them, stoves have been occasionally made to supply their place. What has been thus gained on the score of the saving of fuel, and of the distribution of heat, has been lost on the score of the renewal of the air. When the construction of stoves is considered, it must be manifest that they cannot determine so voluminous a current of air, as that which is established by the means of a chimney.

In reality, the aperture by which the air finds its way into stoves, having a diameter of a few inches only, can simply attract a column of air of that dimension; insomuch that a greater quantity cannot be renewed in the wards, at the same time that the air, which is not within the boundaries of this current, is driven back on the beds and on the walls. As, in the rivers which flow with the greatest impetuosity, the water in the middle of their bed glides rapidly on, while that at the sides remains in a manner motionless; so likewise the air, thrown into action by any cause whatever, escapes through the outlets which present themselves in its passage, and repels, in the lateral parts of the wards, the layers in its vicinity. The latter, being effectually made to ebb, are renewed with difficulty, and preserve for a long time their noxious quality. It has accordingly been remarked, that the patients placed in these parts of the wards are exposed to more serious relapses,

lapes, and cured with greater difficulty than the others. It therefore becomes necessary, to put in action, at the different points of the wards, an agent possessing a sufficient activity to embrace and draw off the totality of the volume of air contained in them.

A method which has been recently proposed to the council of health, and which has met with its fullest approbation, consists in applying to the funnels of the stoves at this time employed in the hospitals, the *aspirators*, or suckers, invented by Salmon, surgeon to the military hospital of Nancy. These aspirators are cones of canvas fourteen inches in length, forming a kind of trumpet, the large aperture of which has a diameter of ten inches, and which is terminated by another aperture of three quarters of an inch. This latter extremity is introduced into the funnel of the stove about an inch and a half, and is there solidly fixed. In proportion as the heat within the stove is augmented, the extremities of the aspirators which are within the funnel receive an additional warmth, and attract in the same degree the atmospherical air of the ward, which is constantly disposed to place itself in equilibrium with the warmer current of air circulating within the funnel. This attraction is made with great celerity, and in proportion to the mass of air that has acquired a mephitic quality.

This ingenious expedient has been attended by the most complete success, and is susceptible of further improvement. It renews the air which has not contributed to combustion, and renders the stoves, by which that element has been hitherto vitiated, capable of maintaining its salubrity. In the plate annexed to this article, A. is the stove; B. the funnel; and C C. the canvas *aspirators*, or suckers. The necessary explanations for the adoption and application of this contrivance have been given above. To facilitate its effect, vessels filled with pure water ought to be placed on the stoves, more especially on those heated with coals. It is unnecessary to add that it would be of the highest utility in manufactories, and in all public establishments in which stoves are employed.

Whatever may be the efficacy of the mode which has been thus pointed out, it cannot, however, be employed for the renewal of the air, unless during winter. It therefore becomes necessary to substitue something in its stead during the other seasons of the year.

Fire also affords us this help, by the application of the ventilating furnace which has been for several centuries

 employed

employed in the coal mines. Instead of placing it, however, on the top of the building, a less dangerous and more commodious situation may perhads be found for it.

When the atmosphere is perfectly calm, the current of air is too weak to facilitate the escape of the portion withinside. In such a case, Maret, a physician of Dijon, has proposed to suspend, in the middle of the window the most favourably situated, a chafing dish filled with lighted charcoal, which, by rarefying the air at that point, may determine thither a current possessing a sufficient rapidity to traverse the ward, and carry off with it a part of the infected air.

It would be highly improper to neglect to open, every morning, and invariably on the side opposite to that from which the wind blows, the doors and windows of the wards. These outlets ought to be multiplied as much as possible; and corresponding ones ought to be made, to give a free access to the circulation of the air, more particularly while the beds are making, and the wards swept.

The renewal of the air may likewise be effected by forming, in the inferior part of corresponding windows, shutters contrived to open on a swing, so as to compress the air, which, having thus acquired a greater force, will give motion to the portion it will renew, and, by displacing it, will prevent the sick from being exposed in too immediate a way to the impression of cold.

The supplementary means which are best calculated to renew the air, and to diminish the causes of insalubrity, cannot be too much multiplied. A very simple one, the good effects of which have been demonstrated by the daily experience of those who work in the mine quarries, consists in boring, in the walls, and more particularly in the angles of the wards, corresponding holes from the floor to the cieling. By opening successively one beneath, and another above, opposite to it, taking care at the same time that the others should be closed, a current which sweeps away the stagnant air is established.

Experience demonstrates that the most turbid water becomes drinkable, and the most unwholesome air is fitted for respiration, by the means of a motion impressed on them. In either of these cases, it is constantly the air that has contracted the bad qualities, which are expelled and replaced by a purer air. Now, this advantage can only be obtained by the agitation of these two fluids, which are so essential to life. It would therefore manifest a criminal

indifference

indifference to neglect any thing which can give mobility to the air, and occasion its renewal.

It will be likewise expedient to establish vent-holes in the different parts of the wards, and to multiply them in proportion to their capacity, employing, for instance, an inverted trough provided with a tube rising from the floor to the ceiling, and a valve made to open and shut at pleasure by the means of a cord and pulley. It cannot be too often repeated, that dwellings in which the air is stagnant are as prejudicial to the health as marshy grounds.

During the summer, when the atmosphere is surcharged with heat, each of the wards may be provided with a large fan, which, being put in motion by the help of a cord, may agitate the air, force it to flow out in proportion as it is vitiated, and convey to the sick a salutary and refreshing coolness.

The use of thermometers ought to be adopted in hospitals; and it should be so contrived as that the temperature of the wards should never exceed from 66 to 68 degrees of Fahrenheit.

During the violent heats the passages leading to the wards should be frequently sprinkled with water; and, withinside, branches of trees recently cut should be distributed, with a view to the refreshing coolness which is so desirable and necessary.

As far as it may be practicable, trees, shrubs, and *inodorous* plants, ought to be kept in full vegetation in the vicinity of hospitals.

Chemical Means.

It is not enough to have prevented the air within from contracting, by its stagnation and a want of communication with the external atmosphere, a noxious disposition; but it is likewise necessary to attack those morbific particles from which fatal effects result, even in the medium that has been just particularized.

It is known that there exist diseases, which, during the whole of their duration, are productive of emanations the more dreadful in their results, in proportion as the constitution of the air which receives them is vitiated; as the ceilings of the wards are low pitched; and as there are a greater number of individuals collected together. These emanations, these *germes*, which are even living after the destruction of the cause that gave them birth, fix and attach themselves to the walls, floor, sheets, blankets, articles of wearing apparel, and bedsteads. They have the

dangerous faculty, of preserving for a long time their *deleterious* quality, and likewise of continually poisoning the air. Under these cicumstances, the means that have been pointed out above become insufficient to produce the *disinfection*; and it is therefore necessary to combine with them still more powerful agents.

Perfumes, of whatever kind they may be, are far from possessing the wonderful properties that have been ascribed to them, and afford but a treacherous security. During their ignition within a circumscribed space, they consume the portion of vital or pure air which they abstract from the atmospherical mass. When they are gradually consumed, so as to become carbonated, the more or less aromatic vapour they exhale is soon confounded with the air it tends to vitiate. When it is inspired in a mass by those of the patients who receive its earliest impressions, it may occasion derangements of the animal economy. This vapour does not supply a new air; and, being extraneous to that with which it blends itself, does nothing more than disguise the bad smells, without destroying them. No time ought therefore to be lost in banishing perfumes from the apartments of the sick.

This opinion relative to aromatic fumigations is not in contradiction with that of the ancients. The forests they consumed with a view to purify the air of infected countries; and the large piles, composed of odoriferous woods, the flame of which was directed towards the cities where a contagion prevailed, were nothing more than immense fires purposely employed to give to the air a greater mobility, and to restore to it, by its renewal, the purity and elasticity of which it had been deprived by any cause whatever. This was invariably done on the supposition that the air was the vehicle of all pestilential scourges.

In several hospitals vinegar has been employed in preference to aromatic substances. It has been the practice to throw it on a heated fire shovel, for the purpose of expelling the infected smells, and neutralizing the putrid miasmata dispersed in the atmosphere. It is, however, erroneous to imagine, that, when it is thus decomposed and reduced into vapour, it possesses any such property. In the same way as the perfumes, it does nothing more than surcharge the air, while it diminishes its elasticity, and renders the infected odour, which it was intended to correct, still more sensible.

It is not but that vinegar, when thrown into expansion in a bottle with a large orifice, may, in common with all the

the acids in a gaseous state, be capable of forming combinations with the putrid ammoniacal miasmata, and, by their destruction, may restore to the air, in which they were in a manner dissolved, its purity and elasticity. But in these cases, its efficacy, relatively to which there is but one opinion, cannot be compared with that of the acetic acid, or radical vinegar; and the latter is still inferior to the agent we now proceed to notice.

Among the means which chemistry has suggested, and which have been employed, to bring about this depuration, with a success which, at a first glance of the subject, seems to surpass all belief, we shall cite the process employed by Guyton Morveau in 1773, in the Cathedral of Dijon, infected to such a degree by the bodies which had been dug up, that it was abandoned by the inhabitants.

This process consists in diffusing in the atmosphere the muriatic acid (acid of sea salt) in a gaseous state, disengaged by the intervention of the sulphuric acid (oil of vitriol). The following is the method of freeing from infection a ward containing from forty to fifty beds.

After having removed the sick into another ward, place in the middle of the empty ward, the windows and doors of which ought to be closed, a furnace provided with a small iron pot half filled with sifted wood ashes, on which is to be laid a glass or earthen vessel containing nine ounces of muriate of soda (common salt) slightly moistened, with half an ounce, at the most, of plain water.

The fire having been lighted, and the vessel heated to a proper degree, four ounces of sulphuric acid, or the oil of vitriol of the shops, are to be poured on the sea salt. The sulphuric acid will act instantaneously on the latter, the acid of which will be made to expand. The operator, who ought to be the apothecary in chief, or one of his assistants well acquainted with the mode of performing chemical operations, should now retire, shutting the door, and taking possession of the key.

He should not enter the ward until twelve hours after, when the doors and windows ought to be opened, to establish currents of air, and to get rid of the portion which may be still charged with the acid.

This process will be rendered of still greater utility, by the application of it to the wards still filled with the sick, as often as the medical men may deem it expedient. Thus, when it has been ascertained that the air of a ward is charged with animal miasmata, and is in want of this excellent purifyer, it will suffice to employ a third of the mixture

mixture above pointed out, or even less. In this case the operator, having the chafing dish in his hand, should proceed, with more or less promptitude, to every part of the ward, beginning as soon as the gas is thrown into an expanded state. As soon as the ward is deemed to be sufficiently filled with the muriatic acid gas, the apparatus should be carried to the privy, to the end that the latest gaseous portions which the mixture may continue to supply, may serve to neutralize the putrid ammoniacal gases which are constantly developed in places of that description.

This operation, which is not attended by any disagreeable sensation, is nevertheless sufficient to cleanse and purify a ward. It may be applied daily, and even more frequently, in a partial manner, to wards in which one or several patients, labouring under gangrenous affections or other putrid diseases, may throw off dangerous miasmata. In an urgent case, provided the concentrated muriatic acid (fuming marine acid) should be found in the dispensary, the same effect may be obtained by carrying an open bottle filled with this fluid in the wards. If it should not be sufficiently concentrated, it may be warmed with a view to bring it into a gaseous state. Finally, these processes may be repeated as often as it may be deemed necessary by the professional men, as was formerly the practice in the case of the useless and even dangerous aromatic fumigations.

Before the operation is entered on, it is expedient that the precise state and condition of each of the patients should be correctly ascertained, to the end that those who have the care of them may, when the atmosphere of the ward is charged with the muriatic gas, be enabled to observe with greater certainty, whether the individuals exposed to its action are subjected to any change, which may, directly or indirectly, be ascribed to this destroyer of putrid miasmata. This precaution will tend to augment the confidence of all, and, perhaps, to perfectionate the application of the means.

The surgeons should be careful not to leave their instruments in the ward in which the muriatic acid is thrown into expansion, seeing that it attacks steel, which it rusts in an instant. On another hand, the apothecaries, to the end that nothing may be wasted, ought to collect the remains of the different mixtures, from which they will obtain, as a product, the sulphate of soda.

It may readily be conceived, that when it is found necessary to diffuse a large quantity of the muriatic gas, its disengagement ought not to be attempted in wards which,

together

together with the effects they contain, are to be freed from infection, until after the patients have been removed. The only mode of effecting this, is to have constantly, in each hospital, a *change ward* for the reception of the patients belonging to the ward it may be deemed necessary to free from infection. This ward ought not, on any pretext whatever, to be applied to any other than the above salutary purpose; and in the principal hospitals two wards ought to be kept for this operation.

The ward which has been thus purified, will in its turn, answer the purpose of a *change ward,* and thus successively, until all the wards shall have been freed from infection, and the miasmata disseminated on the surface, and in the atmosphere of the hospital, shall have been neutralized and destroyed: — until, in short, the air shall have been entirely renewed.

In the ward in which the operation is performed on a large scale, the blankets, mattresses, clothing, and, in general, all the pieces of linen or woollen cloth which may have been employed in particular diseases, ought to be exposed to the action of the muriatic gas, in such a way as that the vapour may reach each of the surfaces of the substances in which putrid miasmata may lurk. The same thing ought to be done in the passages and avenues leading to the wards.

The oxygenated muriatic acid possessing, as Fourcroy has observed, a still greater energy, ought to be preferred in this process. Accordingly, when the oxyd of manganese can be readily procured, a small quantity of it may be added to the above mixture. For this purpose, the metallic oxyd in question ought to constitute a part of the supplies of the dispensaries.

The combustion of sulphur has been employed, not unsuccessfully, with the same view. But the sulphurous gas which is disengaged is not managed with the same facility, and does not, besides, rise so readily into the upper regions of the air.* It cannot therefore be substituted, without detriment, to the vapours of the muriatic acid, which, by their extreme expansibility, readily diffuse themselves in the upper and lower layers of the atmosphere, seizing with avidity on the putrid miasmata which are there condensed, and which seem to be of the nature of ammonia (volatile

* This observation, which is extremely important, applies equally to the *nitrous* acid.

(volatile alkali). These miasmata the muriatic acid attacks, wherever it encounters them. It is expedient, however, not to neglect the combustion of sulphur.

The means of explosion and deflagration hitherto employed, to destroy contagion, such as inflamed nitre, gunpowder, and the discharge of fire-arms, act merely by their mechanical effect, and do nothing more than displace and change the air for the moment. Their efficacy is but of a short duration; and independently of this consideration, the only gases they disengage are the azotic and the carbonic acid. Lime-water itself, by which the latter of these gases is absorbed, does not appear to annihilate the morbific miasmata.

The complicated ventilators, on which so many praises have been bestowed, if duly appreciated, will be found to possess but a comparatively trivial advantage. By the space which they occupy in the wards, they are rather an incumbrance, and an obstacle to the free circulation of the air, than an assured expedient for its complete renewal.

At this time, when chemical knowledge has been successfully applied to our prime necessities; when it is as easy to analyze the air as other fluids; when its nature can be ascertained in an instant; and when the specific qualities which it needs, to contribute to the maintenance of life, can be restored to it; the medical men belonging to hospitals ought to consider it as one of their most essential duties, to ascertain, from time to time, the temperature of the air of the wards, taken in the angles, and at the head of the beds.

The experiment is a very simple one. It consists in entering the ward, provided with two phials, one of them filled up to its mouth with pure water, and the other with lime water. The former is to be emptied at the spot where the quality of the air is to be ascertained; and the one half of the lime water contained in the second bottle to be added instantly after. The vessel having been nicely closed and agitated, the quantity of the precipitate, and the promptitude with which it is thrown down, will serve to determine the necessity and urgency of the employment of the muriatic gas; seeing that the knowledge recently acquired, relatively to the nature of the gases, renders it highly probable, that in the wards where a suspicion of insalubrity is entertained, the putrid miasmata are constantly accompanied by a considerable quantity of the carbonic acid.

Lime water presenting the most economical and efficacious mode of freeing the air from the carbonic acid gas which

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is necessarily produced by a great number of persons collected together; and this acid being so much the more dangerous as it is retained by its gravity in the inferior region of the air; vessels filled with lime water ought to kept in each of the wards. The promptitude with which the pellicle is formed, is the best eudiometer to ascertain the presence of the carbonic acid gas; since those of Fontana, Volta, and Scheele, merely point out the air from which vital air has been drawn.

Conclusion.

It results from what has been laid down, that as cleanliness has a decided influence on the salubrity of hospitals, its strict observance in every particular will render the employment of the mechanical and chemical means which have been pointed out, either less frequently necessary, or more efficacious in their results. Accordingly, to renew the air of the wards, and to destroy the mephitic vapours which usually abound in them, it ought to be observed:

1st. That the hospitals should be freed from every source of infection; that the sick should not be crouded together in too great numbers; that the utensils destined for their different uses should be perfectly cleansed; that the hospital great coats and blankets should, together with the various articles of clothing, be subjected to the action of the muriatic acid, or sulphurous gas, whenever they have been worn or employed by patients labouring under contagious diseases; that the body linen, sheets, napkins, &c. should be well-washed; and the walls and floors swept daily.

2dly, That a well directed fire being the most certain mode of preventing the stagnation of the air, of establishing strong currents, of renewing it, and augmenting its motion, it is necessary to multiply these currents, in proportion to the extent and form of the building, and constantly to give them such a direction as will enable them to expel the foul air at each of the points of the wards; that the *aspirators,* or suckers, fixed to the funnels of stoves, constitute at this time the instruments best calculated to produce such an effect; that every opportunity ought to be embraced to open the windows, as well as the apertures made in the doors, aud at the angles of the walls; and that the vegetation which nature employs to maintain and re-establish the salubrity of the air, ought to be comprehended among the means employed to maintain the salubrity of hospitals.

3dly, and lastly. That the means of cleanliness, and the mechanical

mechanical means, intended to produce the effects that have been pointed out, are sometimes not sufficiently powerful to destroy the putrid ammonical miasmata which particular diseases disseminate in the atmosphere; that the common muriatic gas, and the oxygenated muriatic gas, eminently possess the property of seizing these miasmata wherever they may have fixed themselves, and of decomposing and neutralizing them; that this process ought to be performed on a large scale, and successively in all the wards of the hospital, by the means of an empty ward to be denominated the *change ward*, which ought to be constantly and exclusively reserved for the reception of the patients belonging to the ward intended to be purified, and by the aid of which the totality of the hospital may be sweetened, and freed from so deleterious a principle. As lime possesses, however, the property of readily absorbing the carbonic acid gas, vessels filled with lime water, which should be agitated from time to time, and renewed as the circumstances may require, ought to be placed in the extremities of the wards.

The Council of Health being desirous to avoid pointing out to its fellow labourers a process with which many of them may be unacquainted, without having at the same time ascertained its efficacy, by trials made in the establishments within its reach, sent several of its members to the hospitals of St. Cyr, St. Dennis, and Gros Caillou, to institute the necessary experiments. The result of these experiments has incontestibly proved, that the mode proposed to free from infection the wards of hospitals by the muriatic acid gas, may be executed without inconvenience, and with the utmost advantage, as well in inhabited as in empty wards, observing, however, to disengage in the former, a smaller quantity of gas.

The expedients which have been proposed are not, as has been already observed, confined to hospitals; but may be rendered highly useful in barracks, ships of war, prisons, houses of industry, and, in general, in all the asylums where a considerable number of persons are assembled. These establishments, the greater part of the inmates residing in which labour under either physical or moral derangements, may be equally infected by a vitiated air, and may require the employment of the same precautions, to extinguish this source of exhalations that are always pernicious.

Before we conclude, we deem it essential to remark, that in presenting a great number of means to prevent the infection

fection of the air in hospitals, and to free them, whether from mephitic vapours, or from putrid miasmata, it has been our aim to render them supplementary to each other. Unquestionably, they do not all of them possess the same energy; but the effects of each are analogous; and too many sure weapons cannot be resorted to against such an enemy. Their employment will lead to a due appreciation of their respective merits, and of the greater or smaller share of attention to which each of them may be entitled, according to the local circumstances. Such is our reply to those who may consider any part of these instructions to be superfluous.

To the powerful considerations of humanity, and of what we owe to our suffering fellow creatures, the Faculty, ought to unite what their own interest demands. Living in a manner in the very focus of morbific emanations, they incur the risk of becoming daily, by a neglect of the precautions that have been prescribed, the victims of the scourge, the preservative and the remedy for which are the objects of these instructions.

Signed. DAIGNAN, BAYEN, PARMENTIER, HEGO, HEURTELOUP, LASSIS, PELLETIER, THERY, CHEVALIER, DUBOIS.

BIRON, *Secretary.*

To the Editors of the Medical and Physical Journal

GENTLEMEN,

WHEN I entered on the consideration of the medicinal properties of opium, I did not expect, neither did I wish, a question so complicated and interesting to be decided without an ample discussion of its merits; but I did wish to avoid useless and unnecessary altercation about extraneous matters; you will therefore, I trust, give me credit for the assertion when I say, it is with no small concern that I have occasion to call your attention and that of your readers, to two communications inserted in the 48th and 58th Numbers of the M. and P. Journal, signed, George Nesse Hill.

The *desultory* manner in which the subject is there treated would have justified me in allowing them to pass unnoticed, had not the author accused me of inculcating a doc-

trine,

trine, which I have uniformly and strenuously opposed; and when called upon to adduce proofs in support of his assertions, (which it was certainly incumbent upon him, as a candid man, to have done,) instead of complying with a request so reasonable, and one, which, could it have been done at all, might have been done with very little trouble; allows nine months to elapse without taking any notice of it; and when at the expiration of that time, his next paper appears, in which I expected to have seen the charge proved or retracted, I find no mention is made either of his former assertions or of my request; but, on the contrary, that it commences with an *erroneous statement of a passage from one of my papers.*

There is such an evident want of candour in this mode of proceeding, as, in my opinion, to disqualify Mr. Hill (even supposing him to be in other respects competent) for the performance of the task he has undertaken.

But I must now proceed to do that *justice* to myself which Mr. H. has so long and ungraciously withheld.

His accusation is conveyed in the following terms:

"It does not appear to me," (says Mr. Hill, Vol. x, page 154) "that this gentleman, when he first announced this matter to the public, conceived of the action of opium in the manner he has lately avowed, when employed in his critique on Dr. Crumpe's Inquiry; *for in some of his first communications he speaks of this drug as a tonic stimulant, in the latter ones as a sedative.*"

And in page 155, "We are not favoured with Mr. W's. definition of these important words, (stimulant and sedative) until we arrive at page 127 of Number 36; *and here I may be permitted to observe, that the accusation brought against the advocates for the stimulant doctrine, as Mr. W. calls it, is not less ascribable to those of an opposite opinion, this gentleman sometimes calling opium a tonic, at others a sedative.*"

And again, the third time, in page 157:

"*But, as already observed, Mr. W. has applied both these terms to opium; it is evident one or other of them must be abandoned, unless he can by any means prove, that the medicine possesses opposite qualities, or has diametrically opposite effects, according to the mode of its exhibition.*"

Now, I conceive it to be exceedingly improper for a writer to accuse another of inconsistency, without, *at the same time,* bringing proof in support of the accusation; but to withhold the proof when called upon to furnish it, is an offence against all the rules of decorum, and demands the most ample apology.

A charge

A charge of this nature certainly surprized me, *having taken some pains to shew that there is no foundation for the opinion implied in it;* and, were it necessary, I could easily bring many passages in support of what is here advanced, but shall content myself with the following from Vol. 7. p. 346.

"Dr. Crumpe's view in making the experiment seems evidently to have been, to observe the *local appearances* resulting from the application of a solution of opium to a tender irritable surface; and this accounts for his omitting to notice any other circumstance. But after having proved to a demonstration that the *primary and general* operation of opium injected into the cavity of the abdomen is directly and powerfully sedative (both the voluntary and involuntary motions yielding to its influence) it necessarily follows, that the increased redness and apparent inflammation, *could not have been the consequence of the opium having acted as a stimulant, unless we suppose that it acts as a stimulant and a sedative at the same time, which would be absurd; and indeed Dr. Crumpe has shewn that idea to be unfounded.*" See his Inquiry, p. 167—8.

This however is only negative proof, but what I have written is upon record; and if there be any truth in Mr. Hill's charge, there can be no difficulty whatever in proving it.

Well knowing it to be unfounded, I added the following postscript to a letter I happened to be at that time preparing, and which appeared in the M. and P. Journal for April 1803. (Vol. ix. p. 348.)

"The request with which the above letter commences, precludes me from replying to Mr. Hill's communication, inserted in No. 48; I shall therefore only observe, that my sole view in selecting the quotation to which Mr. H. alludes, was merely to sanction the publication of the facts which had occurred to me, and that my choice was not directed by any opinion I had formed of the modus operandi of opium, (for I confess I had not then paid sufficient attention to the subject to enable me to make up my mind upon it) much less of its manner of operating in the disease treated of by Mr. Pott."

It will not, I hope, be deemed inconsistent with the tenor of my request, *to desire Mr. Hill will have the goodness to point out, through the medium of the Medical Journal, in which of my papers I have spoken of opium as a tonic stimulant, or have attributed opposite qualities to it.*

And expected to have found in the next, and every succeeding number, that it had been attended to; *Mr. Hill's reputation as a writer certainly requiring that an immediate and full answer should have been given.* In this expectation however I have been disappointed, Mr. H. having published another paper in the Journal for the present month, without adverting to it. *He has certainly quoted a passage from one of my papers; but by adding a word, and leaving out two, has entirely perverted its original meaning: and this misrepresentation* (as the paper commences with it) *seems to have been intended as a justification of his conduct.*

The passage as it stands in my paper (M. and P. J. Vol. vi. p. 480) is as follows:

"*After the same medicine* (opium) *both alone and joined with other antispasmodics, tonics, &c.*"

As represented, *or rather misrepresented* by Mr. Hill, it stands thus.

"*Opium joined with other antispasmodics, and tonics.*" See Vol. x. p. 532.

The most favourable construction that can be put upon Mr. Hill's conduct in this instance, is; that he quoted at random, without any regard to accuracy.

"*Can the best interests of the profession in any degree be furthered*" (to use a phrase of Mr. Hill's) "*by such unworthy means?* or, can such a proceeding, (to use another of Mr. Hill's) "*tend to the promotion of that desirable end of all amicable discussion,*" (truth and consistency)? *

It

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* "Having taken some pains (says Mr. H. Vol. ix. p. 153—4) to understand the new theory of the modus operandi of opium, as attempted to be established by Mr. Ward of Manchester, and finding that every number of your useful work, containing any of that gentleman's remarks on this great subject, has tended only to convince me of the just foundation in truth of Dr. Crumpe's statement, *although that author's work has not* FALLEN *into my hands)* I have taken the liberty of troubling you with a few occasional thoughts, which have occurred to me on this important matter; *if you think the best interests of our profession will in any degree be furthered by the insertion of them, I crave a place in the Journal, at your convenience; if not, please to set them aside.*"

"I have, for some time, been waiting with some degree of impatience, to see the doctrine Mr. W. has endeavoured to elucidate, and enforce, freely canvassed and discussed in all its views, *that its harmony with truth, and its consistency with experience,* might establish the fact, or its fallacy and speciousness be detected, and the question be for ever set at rest. Hitherto I have been disappointed; *it will give me no trifling satisfaction to find that what I have said has tended to the promotion of this desirable end*

It may perhaps be said, that Mr. Hill's last paper has been written some time, and kept back in consequence of my desiring the readers of the Journal to suspend their remarks on my papers, until the whole of the evidence shall have been laid before them; but this plea will be of no avail, as it contains nothing to the purpose.

It only remains for me to apologize to yourselves and your readers, for having occupied so much of their and your attention on so unpleasant an occasion.

Manchester, I am, &c.
December 22, 1803. M. WARD.

CASE OF INVAGINATION OF THE COLON IN THE RECTUM; *read at the Medical Society of Paris, by G. Roux, M.D. Communicated by our Correspondent at Paris.*

A. B. a labourer, forty-eight years of age, was seized in the spring with diarrhœa, accompanied by derangements of the stomach. The day of its occurrence he had committed some excesses as well in the use of drink as of exercise; the patient complained of cholic pains, which were the consequence of this excess; in short, the complaint increased in intensity and violence, so as to oblige him to go twenty or twenty-five times a day to stool. During one of those efforts a tumour appeared of the size of an egg, exteriorly, at the anus, accompanied by such violent pain as to render it impossible for the patient to stand erect; in this state he was got to bed, and in less than two hours the tumour had increased very considerably. A woman, who happened to be present, made many useless efforts to reduce the tumour, after which the patient called for medical assistance.

The person who was consulted did not endeavour to reduce the swelling, but had recourse to general bleeding and the use of barley water; the bleeding was repeated the same evening. The third day of the existence of the complaint, M. Roux, and M. Lauernet, surgeons, were called to see the patient, who found the fever considerable and the belly painful to the touch; pains were also felt, which extended

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end of all amicable discussion, being long since assured that the real interests of truth have nothing to apprehend from the closest severity of investigation, nor the utmost censure human judgment can pronounce."

extended from the epigastric region down to the extremity of the tumour, which had now a frightful appearance; it was from nine to ten inches in length, and six or seven broad, of a chesnut colour, hard, and extremely painful, and furrows of a deep brown colour were observable on its surface. The size and hardness of the tumour precluded the possibility of its reduction, and the gentlemen in attendance confined themselves to the use of such means as were best suited to calm and allay irritation. The use of the white decoction of Sydenham was recommended as drink, and baths procured some relaxation from pain, which, as well as the tension, had much diminished; the colour of the swelling, however, was become much darker.

On the fourth day a hiccup commenced, which increased considerably in the course of the day; the fever and pains in the intestines continued, and the appearances, as already described, remained the same, as well as the impossibility to effect a reduction. The same treatment was continued.

On the fifth day the hiccup and pyrexia had increased; and in the evening nausea and vomiting came on. The tumour was flaccid in some places, but the circumference of the anus continued hard; and the exterior membrane of the tumour seemed disposed to exfoliate. New and fruitless efforts were made to reduce it. From this moment all hopes of future success were given up; "we even doubted its utility or advantage, for we had reason to presume the existence of a strangulation above sufficiently great to have caused gangrene to be the principal source of the accidents which now began to succeed each other with rapidity, and which bore a striking analogy with the appearances of strangulated hernia. We determined to make use of antispasmodics united to antiseptics." A Note of the Author observes, that "the very critical situation in which he, as well as the other persons in attendance, were placed, required every precaution. It was at this period that we examined the question, Whether an enlargement of the anus, with a view to favour reduction, was advisable in the present state of things? We inclined to the negative so much the more strongly, as we were really ignorant of the parts engaged, or of the seat of the strangulation."

On the sixth day, all the symptoms had increased, accompanied by vomiting of stercoral matter; the pulse was weak, small, but regular; the tumour was flaccid, and there was a sensible diminution of volume; there issued from it a very strong putrid exhalation, accompanied by an ichorous

ous oozing from its surface, and about the verge of the anus.

On the seventh day, the fever was stronger in the morning, the pains in the belly more sharp, respiration more laborious, as well as the vomiting and hiccup; the tumour was much diminished, but the tension about the sphincter continued. The medical attendants having communicated the approaching death of the patient to his friends, they gave him up to the care of an old woman, who, by repeated efforts, had thrust the tumour within the rectum. In the evening of this day the patient died.

Persuaded of the existence of a volvulus, M. Roux, &c. obtained, after long solicitation, permission to examine the body; and the following were the appearances: "The external tumour had almost entirely disappeared; on opening the abdomen much gas issued, and there was found in the cavity about a quart of a serous brownish-coloured fluid. The volume of intestines was greater than natural, and they were covered by a new membrane, which connected them with the peritoneum on all sides. The intestinum ileum, two-thirds of the superior portion of the colon and the cæcum were inflamed, particularly the two first. Pursuing our inquiries toward the rectum, we perceived, at the superior part of this intestine, an inflammatory ring, about seven or eight inches distant from the sphincter, and compressing very strongly the inferior part of the colon. While we were examining these appearances, we remarked the laceration of the false membrane that united the two surfaces of the intestines, evidently invaginated. The rectum, when opened above the ring in question, shewed the colon invaginated in the rectum nearly thirteen inches. The two superior inches of this portion of the intestine bore evident marks of an alteration of structure. The diameter of the intestine was much contracted at this place, and its parietes were very much thickened; the three inches below this, and which formed nearly a third of the invagination, were free, and had scarcely any appearance of disease. The two inferior thirds of the invagination offered all the appearances of the intestinal tumour already remarked to have formed the external swelling: And, lastly, the two extremities of the invagination adhered strongly to the corresponding points of the rectum. The mucous membrane of the rectum was much tumefied, and altered from its natural state."

"These appearances (continues the Author) demonstrate to evidence the existence of intus-susceptio, a disease noticed

ticed by the Father of Medicine, and on which Morgagni has much insisted." We find in Albinus, Fabricius, Le Cat, and Sabatier, very exact notions on the nature of this disease, particularly the latter, who, in a Paper inserted in the Memoires de l'Acad. tom. v. speaking of the supposed falling down of the rectum, says, "These facts prove that the disease called the descent of the anus or rectum, instead of being produced by the inferior part of the intestine, or by the prolongation of its internal coat tumefied, as has been hitherto supposed, has been frequently the effect of a volvulus or invagination of the intestinal canal, beginning at a greater or less distance from the anus, and which, after having forced through this opening, presents itself externally.

M. Roux asks, if art offers any resource in this case? He thinks it would be useless, if not injurious, since the strangulation does not always exist at the anus, and that we know not the place of its real existence. Should excision be proposed? Would not an operation, which comprehends parts of such great importance be inadmissable? Should an incision the length of the tumour be made? What would be its object? or what could be gained by it? And, lastly, he asks, Should gastrotomy be resorted to? This resource, proposed by some authors, and rejected by others, is but momentary; for considering the danger of the disease, and comparing its consequences with its disadvantages, we are obliged to confess with Hiver, that it should be banished from Surgery. Would the reduction of the tumour remedy the fatal consequences of invagination? This is probable; but it should be effected immediately, half an hour or an hour might give rise to changes which would render the operation abortive. Let us suppose that it was reduced under proper circumstances, would it not be useful, observes M. Roux, after reducing the intestine, to pass the index finger, with a view of disengaging all the invaginated intestine; after which emollient clysters, &c. should be employed. In this particular, the Author's situation, as well as of other medical men in attendance, precluded the possibility of every effort, and his motive in making it public, is to throw some light on the subject, and to call the attention of practitioners to similar occurrences.

The Revisors of this article, Messrs. Sedillott and Girand, give the following Note on this Case. We think, say they, that in the cases where the reduction is impossible, that Gastrotomy, properly practised, becomes necessary.

It

It would have been useful, they add, if the author had dwelt more on the state of the intestines, and that he had informed us whether their structure was not torn, in order to give passage to the intestine forming the tumour, so as to be contained only by the mucous membrane, as we observed in the case of a child of seven years old, in which all the small intestines protruded at the anus.

Paris, Nov. 17, 1803.

*** We recommend a paper on this subject by M. Fages, inserted in the 7th vol. of our Journal; in which will be found the opinions on the advantages and disadvantages of Gastrotomy. Ed.

Observations on the Crural Hernia, by Dr. Hull.

(Continued from our last pp. 48—59.)

7. CHOPART and Dessault, if a division of the arch be necessary, direct it to be made upwards and inwards, when the hernia is situated near the crista of the os pubis; upwards and outwards, when it is at the side of the superior and anterior spine of the os ilium, in order to avoid the epigastric artery.—*Traité des Mal. Chir.* t. 2. p. 281, 8vo. Paris, 1779.

8. Richter directs us to examine well, whether the fibres passing from the fascia lata to the crural arch be sufficiently divided before we think of cutting the arch. The direction of the incision, according to him, must depend upon the situation of the hernia: If the hernia be placed entirely, or in a great measure, on the inside of the crural vessels, so that the pulsation of the crural artery can be felt on the outside of the tumour, the incision is to be directed obliquely towards the linea alba, and is *to be made as near as possible to the inner angle of the aperture,* not only because this part is the most distant from the epigastric artery, but because the hernia especially occupies this angle: If the hernia be directly over the crural vessels, or on the outside of them, the incision should be made near the external angle of the aperture, and be directed outwards and upwards. He also advises us to make the incision of the arch, at first only sufficient to admit the introduction of a finger, by which the pulsations of the epigastric artery may be generally felt; and then, should it be necessary to enlarge the incision, this may be done in a direction

where no pulsation can be felt.—*Abhandlung von den Brüchen*, ed. 2, Gottingen, 1785, and *Anfangsgründe der Wundarzneykunst*, b. 5, Gotting. 1798.

9. Else to avoid the division of the epigastric and spermatic arteries in cutting the crural arch, made a small incision through the tendon of the external oblique muscle a little above the arch; he then introduced a grooved director through this incision, and keeping its point constantly in contact with the tendon or ligament, first passed it downwards and then backwards, so as to bring it out behind and beneath the crural arch. He afterwards cut through the arch upon the director. This method was recommended by Mr. Cline, at the time I attended his lectures; and if proper care be taken, the spermatic cord will be completely out of the reach of the knife during the cutting of the crural arch, the grooved director being placed between the knife and the artery. But it is not always easy to pass the director properly beyond the posterior margin of the crural arch.

A CASE.

Ellen Livesey, æt. 45, of Over Darwen, a village about four miles from Blackburn, had been afflicted with a crural hernia about three years, which she could always reduce by lying down on her back and pressing the tumour with her hand, before the 12th of June, 1785. On this morning she had rushed suddenly out of bed, in consequence of a knock at the door. Pain in the abdomen and sickness came on immediately. She experienced some uneasiness in the part, and attempted to reduce the hernia, but without success. She sent for a practitioner, who lived in the same village, but did not inform him of the rupture. He gave her some medicines, and these affording her no relief, Dr. Lancaster, of Blackburn, with whom I was then in partnership, was sent for the next day, the 13th. She still omitted to mention the circumstance of her having a hernia; supposing that, as she had had it so long without any material inconvenience, it could have no share in the production of her present painful and urgent symptoms. Considering the case as a colic, he directed for her a purgative mixture and clyster, and an anodyne mixture to be taken afterwards. She had no stool from the purgatives, but the pain and vomiting were relieved by taking the anodyne. Some degree of hiccup came on in the course of this day, but was not very frequent or severe. On the 14th, in the morning, the pain again increased, and I was called

called in. She concealed the circumstance of the tumour till I questioned her about it. She then acknowledged it; and upon examining the tumour, I found it to be a small crural hernia. I attempted to reduce it by placing her head low and raising the thigh, at the same time pressing upon the tumour. This not answering, she was blooded, till she became faint, and another attempt was made to return the contents of the hernia, but in vain. She was next placed in the warm bath for an hour, and when she came out, a third attempt was made to replace it. This also failing, I proposed the operation. She would not consent at this time, and I returned home and directed her to take the saline mixture in the state of effervescence every three or four hours, requesting to be informed, as soon as she should consent to the performance of the operation.

On the 15th, about one in the morning, her husband came for me, and on my arrival at Darwen, having again attempted to return the hernia without success, I proceeded to operate, beginning the incision through the integuments about one inch and a half above the tumour, and carrying it down to about an inch below the tumour. The external oblique muscle and the fascia of the thigh being thus exposed, I divided the fascia, and afterwards the sac, which contained some bloody serum, and a small portion of intestine, very much altered in colour, but not mortified. I next made a small incision through the obliquus externus, rather more than half an inch above the anterior margin of Poupart's ligament; then introducing a director through this aperture I passed it downwards, with the view of getting it behind the ligament, and took care at the same time to keep the point of the director always in contact with the muscle or ligament as it passed along, for fear of its getting behind the ligamentum rotundum of the womb. The attempt to bring out the point of the director behind and beneath the ligament gave so much pain, that I desisted, and it occurred to me that I might derive some advantage from dividing the obliquus externus upon the director from the point where I had introduced it, down to the anterior margin of Poupart's ligament. I did so, and the gentleman who assisted me in the operation, was hereby enabled to raise the ligamentum rotundum out of the way of the knife, whilst I cautiously divided Poupart's ligament obliquely upwards and inwards, after insinuating the probe-pointed knife betwixt it and the sac. The division of the ligament being completed, a larger portion of intestine

testine was pushed out of the abdomen, and formed a striking contrast, in point of colour, with the portion that had been strangulated. The whole of the protruded intestine was afterwards easily replaced. There was very little blood lost; and the wound being dressed, the patient was placed in bed with the breech raised. Her pain was relieved by the operation, and her pulse, which was at 126 before the operation, had now fallen to 112. I gave her an opiate and left her.

At nine o'clock the same morning I saw her again. She had slept a little, and had passed one small loose stool, so small indeed, that I could not conclude from thence that there was a free passage from the intestinal canal above the strangulated part. She had experienced no return of the vomiting. The saline mixture was continued. In the afternoon of the same day I saw her again. Her pain was now very considerable. The abdomen tumefied and tender, but not tense. An inverted peristaltic motion of the alimentary canal (differing from ordinary vomiting in this respect, that the diaphragm and abdominal muscles seemed not to be concerned in the evacuation) harrassed her almost incessantly. Every thing she took was instantly rejected. Her pulse being rather hard, though small and frequent, about twenty-four ounces of blood were taken from the arm: A strong decoction of poppy heads and chamomile flowers, with the addition of about one eighth part of common spirit, was used as a fomentation to the belly, and the boiled herbs were afterwards applied, mixed with hog's lard so as to form a cataplasm, and kept on the belly all night. A grain and a half of opium was administered every six hours in the form of a pill. The pain soon abated, and the proper action of the alimentary canal was restored.

On the 16th in the morning, I found she had slept tolerably. The tumefaction and pain of the belly were diminished; her pulse was less frequent. She had had no more stools. Eighteen ounces of blood were taken away. The opiate pill, fomentation, and cataplasm were continued.

On the 17th in the morning, she was much better in every respect. As she had not passed a stool, a purgative mixture was directed, which operated very well. She had stools regularly for some days and afterwards had a smart diarrhœa, which gave way to the combined use of opium, ipecacuanha, and catechu.

She had no bad symptoms after this time, and began to

wear a truss in the August following, which secured her from a return of the complaint.

10. Mr. B. Bell thinks it impossible to make a free division of the crural arch in the male, without cutting the spermatic vessels across, and informs us that, instead of dividing Poupart's ligament from below upwards, he makes a slight incision into the ligament about an inch in length, beginning above and proceeding to the under edge of it; that by repeated touches with the scalpel he penetrates almost through the whole thickness of the ligament, till at last only a thin layer of it remains. And then adds, "In this situation the protruded parts may for the most part be returned with ease, as the ligament, where thus weakened by the incision, will yield gradually to the pressure applied for the reduction of the intestines."—*System of Surgery*, vol. v. p. 363, ed. 6.

From Mr. Bell's own account of the manner in which he performs the operation for the crural hernia, it appears that he only partially divides the anterior margin of the crural arch, and that he does not even touch the posterior margin. Nevertheless, Gimbernat makes the following observation upon Mr. Bell's method: "He would naturally rest the back of the scalpel upon his finger, which served as a guide to the instrument, and at the same time as a defence to the intestine. The incision being continued for an inch, the operator would inevitably cut the internal edge of the crural arch." Page 27.

11. Dr. Monro observes, "that the division of the tendon in the crural hernia is not attended with that degree of danger which some of the latest and most eminent writers have supposed, provided the edge of the knife be turned towards the umbilicus, in which direction both the epigastric artery and spermatic cord are at the greatest distance from it, and that the knife be used like a saw, dividing cautiously with it one tendinous fasciculus after another." *Description of all the Bursæ Mucosæ, &c.* p. 52, folio, Edinb.

Dr. Monro, jun. has given a more circumstantial account of the mode of operating in crural hernia, recommended by his father; from which it appears that his father first introduces a small furrowed probe, or directory, under the crural arch, before he divides it with the knife." *Observations on Crural Hernia*, p. 92, &c. Edinb. 1803.

12. Don Antonio de Gimbernat published his *Nuevo Método de Operar en la Hernia Crural*, at Madrid, in the year 1793; and Dr. Beddoes gave a translation of this work in the year 1795, under the title of *A new Method of Operating*

ting for the Femoral Hernia, &c. M. Alibert will not allow that the method is new. He says, " La mèthode, que M. Gimbernat propose pour le traitement de la hernie crurale, n'est pas nouvelle pour les chirurgiens Français, malgré le titre de son opuscule." *Recueil Périodique,* &c. tom. ix. p. 331.]

However this may be, we are indebted to Gimbernat for a more circumstantial description of the crural arch, than we before possessed, and, I believe, for the earliest publication of the method of operating, which we are now to consider. He directs us to cut that portion of the posterior margin of the crural arch, which is attached to the crista of the os pubis. His method of making the incision we shall give in the words of the Translator.

" For this purpose introduce along the internal side of the intestine a canulated or grooved sound, with a blunt end, and a channel of sufficient depth. This is to be directed obliquely inwards till it enter the crural ring, which will be known by the increased resistance, as also when its point rests upon the branch of the os pubis. Then suspend the introduction, and keeping the sound (with your left hand, if you are operating on the right side, and v. v.) firmly resting upon the branch of the os pubis, so that its back shall be turned towards the intestine and its canal to the symphysis pubis; introduce gently with your other hand into the groove of the sound a bistoury with a narrow blade and blunt end, till it enter the ring: its entry will be known as before by a little increase of resistance; cautiously press the bistoury to the end of the canal, and employing your two hands, at once carry both instruments close along the branch to the body of the pubis, drawing them out at the same time. By this easy operation you will divide the internal edge of the crural arch at its extremity, and within four or five lines of its duplicature, the remainder continuing firmly attached by the inferior band or pillar, of which it is the continuation. This simple incision being thus made without the smallest danger, the internal border of the arch, which forms the strangulation, will be considerably relaxed, and the parts will be reduced with the greatest ease." P. 45 and 46.

By this method of cutting the arch, which is well adapted to some cases of crural hernia, the stricture will be taken off without any danger of wounding the epigastric or spermatic arteries. Yet it is far from being perfectly safe. Gimbernat allows, that the urinary bladder will be liable to be wounded, if it be full at the time of the operation, and that in pregnancy of four months and upwards, the uterus

uterus may also be wounded. Dr. Monro, Jun. says, "If the bladder be emptied, the smaller intestines will slip downwards into the place the distended bladder of urine pre-occupied, and hence may be injured." *Observations*, p. 92.

From what has been said above respecting the course of the arteria obturatoria, when it arises by a long common trunk with the epigastrica, this artery becomes liable to be wounded. And, when there is a stricture formed by the neck of the hernial sac, or an adhesion of the sac to its contents, there would be considerable difficulty in passing the director, and great danger of wounding the intestine. On this, and indeed other grounds, it would be an improvement on Gimbernat's mode to pass the director betwixt the sac and the extremity of the crural arch, instead of introducing it within the sac.

This author says (page 12), "If the Fallopian ligament be cut across the posterior pillar of the inguinal ring it is destroyed without remedy in both sexes, and in the male an important artery," (the spermatic) "will always be cut." This, he says, has been proved by experiments made in the Hotel Dieu at Paris. But it is clear that in the methods of cutting the ligament across, suggested by Mr. Else, and practised by me on Ellen Livesey, the spermatic artery will not be injured. Again, in p. 16, he says, "if the Fallopian ligament be cut obliquely inwards, the epigastric artery is as liable to be divided as when the ligament is cut obliquely outwards, though a little further from its origin." But whoever will examine carefully the course of the epigastric artery, must be convinced that the incision of the ligament, in the former case, will be parallel to the artery, and consequently cannot affect it. Günz assures us that he performed the operation frequently on dead bodies, whose vessels were injected, and always found the epigastric artery divided, unless the incision were made obliquely towards the linea alba.

It may not be improper to observe here, that Gimbernat by restricting the signification of the term *Fallopian* ligament, and considering it as the anterior margin of the crural arch, (not as the whole arch or doubled tendon of the M. obliquus externus) may puzzle or mislead his readers. He tells us (in page 47) that the Fallopian ligament is not at all concerned in the operation he recommends, and (in page 16) he says, "Moreover, in all these methods, the Fallopian" (ligament) "is cut, which is perfectly useless, unless the incision be carried on to the internal edge of the crural arch." Now, if we consider the Fallopian

ligament

ligament as synonymous with the crural arch, as is frequently if not generally done, Gimbernat himself divides this ligament; and, taking it in the limited sense, which he usually does, we have very respectable authority for maintaining, that the division of the Fallopian ligament has been sufficient in many instances for removing the stricture.

13. Mr. Latta, after describing the previous steps of the operation for the crural hernia, adds, "Thus the ligament will be plainly seen, and by carefully dissecting away the fat and fascia of the thigh on each side, till you come to the insertion of the ligament, and *then dissecting it gently away from its insertion into the crest of the pubes*, the stricture will be completely removed; and this may be done without the smallest danger of cutting either the spermatic vessels in man, or the epigastric artery in woman, where these vessels are in their natural position." *System of Surgery*, vol. I. p. 281. Edinb. 1794.

Mr. Latta here directs the crural arch to be divided in the same part, in which we have found Gimbernat recommending it to be cut, and his first volume was published before Dr. Beddoes's translation. But in the two cases related by Mr. Latta, it appears, that he did not practice this method; for in the case of Mrs. H. V. he introduced a spatula under the edge of the ligament; and in the case of M. D. a grooved director, and then scratched the ligament almost completely through its whole breadth.

14. Lassus directs the incision of the crural arch to be made differently in different cases. When the hernia is situated between the femoral artery and the angle of the os pubis, the arch is to be divided upwards, and a little obliquely towards the linea alba; but, if the hernia be situated upon the femoral artery, or on the outside of it, the incision of the arch is to be made obliquely towards the os ilium. "In every case," he says, "this incision should be made as small as possible, not more than from three to four lines."—*De la Médecine Opératoire*, tome I. p. 200, &c. 8vo. *Paris*, an. 3.

15. Sabatier, when it is necessary to divide the crural arch, recommends that the incision be made in the direction of the umbilicus. He adds, "That the stricture is thus more completely taken off, because the incision falls perpendicularly on the parts which form the strangulation, and that the epigastric artery is more easily avoided."—*De la Médecine Opératoire*, tom. I. p. 150, 8vo. *Paris* 1796.

16. Ar-

16. Arneman is of opinion that the strangulation may sometimes be removed by cutting the small fibres or filaments attached to Poupart's ligament. If the crural arch must be divided, he says, the incision should be made obliquely towards the linea alba.--*System der Chirurgie*, th. I. p. 675, *Göttingen*, 1798.

17. Gallisen, when other means fail of success, directs a very small incision of the Fallopian ligament to be made, and says, that extension then always succeeds. The direction of the incision is to be determined by the situation of the crural vessels. If these run along the outside of the hernia, the incision is to be made obliquely inwards; if under the hernia, or at the inner side of it, the incision is to be directed upwards and outwards.—*Syst. Chirurgiæ Hodiernæ*, t. 2. § 749. Ed. nov. 8vo. *Hafniae*, 1800.

18. Mr. Hey is satisfied that the stricture in crural hernia is not caused by Poupart's ligament, but by another, which he calls the *femoral* ligament, situated about three eighths of an inch below Poupart's. This ligament, he says, is somewhat similar to that of Poupart, but smaller, is deeper, and runs transversely, or rather ascends, as it approaches the symphysis of the ossa pubis, passing behind and decussating the extremity of Poupart's ligament.

From a careful perusal of the description and an attentive examination of the two plates which accompany it, it appears clear to me, that Mr. Hey does not understand by *femoral* ligament, the acute posterior margin of the crural arch, but a ligament situated lower on the thigh than the anterior margin of the arch. Indeed, we find him pointing out in the explanation of plate 4, letter *k*, "the femoral ligament *formed in the fascia of the thigh*, or anterior layer of the aponeurotic sheath of the great femoral vessels." He informs us, that the division of the femoral ligament may be executed without danger to the spermatic or epigastric artery, and gives the following directions for taking off the stricture. "If the tip of the finger can be introduced within the femoral ring, to guide the bubonocele knife, a small incision (for the ring is narrow) will be sufficient to set the parts at liberty. If the tip of the finger cannot be introduced at the proper place, a director with a deep groove must be used instead of the finger, but I prefer the latter. The finger, or director, should not be introduced very near the great vessels, but on that side of the intestine or omentum, which is nearest to the symphysis of the ossa pubis. *The incision may then be made directly upwards.*" p. 153. Mr. Hey therefore neither cuts the same

ligament,

ligament, nor in the same direction, in which Gimbernat does. Yet Dr. Monro, jun. says, "As an additional argument in favour of Mr. Gimbernat's method of operating, I may add, that it is not essentially different from that recommended and practiced by Mr. Hey of Leeds." *Observations, &c.* p. 95.

The Doctor appears to have fallen into another error, in the explanation of his own plate 3. fig. 1. He points out the portion of the posterior edge of the crural arch, comprehended betwixt the letters *c* and *d*, as the part divided by Gimbernat. But this portion of the arch appears to my eye free and unattached to the os pubis, whereas Gimbernat divides the internal foot of the arch, which is nearer the symphysis pubis even than the letter *d*.

The femoral ligament, described by Mr. Hey, and considered as distinct from the crural arch, is in my opinion a mere accidental occurrence, nothing more than a portion of the fascia of the thigh, that happens to press more strongly upon the subjacent parts than the rest. The author makes the following observation concerning this ligament in page 154. "When this is examined by dissection, it will be found to resemble the inferior border of the aponeurosis of the external oblique muscle of the abdomen. In those subjects, which I have dissected on purpose, *I have not found it equally distinct,* but it has been in all of them sufficiently apparent." I do not recollect to have met with any such ligament, either in operating for the crural hernia, in examining the bodies of two women who died of incarcerated crural hernia, or in the numerous cases, in which I have examined the crural arch of persons who have died from other causes. Since I have had the satisfaction of perusing Mr. Hey's valuable volume, I have had an opportunity of examining with considerable attention the crural arch on both sides in a female, who died of a bubonocele, yet I could not find any traces of the ligament under consideration. When a finger was passed down from the abdomen through the crural rings in this case, the principal stricture arose from the thin posterior margin of the crural ring.

From Mr. Hey's description and plates it appears to me, that where a stricture is produced by what he names the femoral ligament, this would be effectually taken off by dividing the fascia over the whole of the hernial sac up to the anterior margin of Poupart's ligament. But I know that such a division of the fascia, in some cases at least, has not proved sufficient to remove the stricture, and that

it

it has been necessary to cut through the crural arch to take off the strangulation, where this was not produced by the neck of the hernial sac. I am therefore induced to believe, that Mr. Hey was not always wrong in presuming formerly, that he was dividing Poupart's ligament, when he divided the part forming the stricture in crural hernia.

[To be continued.]

To the Editors of the Medical and Physical Journal.

GENTLEMEN,

FROM the liberality which I have experienced from you, and from no other cause, I have presumed to offer the following remarks on Mr. Cuming's communication, on the use of white vitriol in agues.

Specifics are so fashionable, that the profession of a physician is nearly at an end, for almost every disease has its specific; and where that is supposed to be wanting, electricity, galvanism, &c. &c. or that great reflection upon common sense, the metallic tractors, are seriously recommended; O tempora, O mores!

I have had occasion to make use of white vitriol some years ago in the cure of ague. I must say I have a good opinion of it; I think it answered the intention pretty well, but I thought cuprum ammoniacum* rather preferable as a tonic in the cure of ague.

The solutio mineralis arsenici, has often disappointed me in the cure of ague, which first led me to make use of those medicines.

I never much admired this solution, I always supposed (not to enter fully upon the subject) that it injured the tone of the stomach, and from consent, the brain, nervous system, &c.

I have very frequently given those tonics with very great success in the cure of hooping cough, and periodical pain of the head, &c. but I will not say they deserve the name of specifics.

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* Cupr. ammon. ℈j. Mic. panis ʒij. Syr. cort. aurant. q. s. m. f. pill. No. xxiv. Capt. j. vel ij.—iij. (sensim augendo dosin) hora decubitus quotidie.

Cinchona has with me frequently failed in the cure of ague; I have often been much astonished how this medicine acquired so very high a character; I am confident it does not deserve it.

Dr. James's powder, so much celebrated in the cure of fever, has not, in my opinion, done more harm than cinchona.

The word specific, I very much dislike; to me the sound is empirical; it is wonderful that I should not be acquainted with one; even in lues, in some particular cases under certain circumstances, I have seen mercury fail of the desired effect.

My patients could never take the quantity of white vitriol* mentioned by Mr. Cuming; in my practice, and from observation, I cannot think it deserves the epithet specific.

I certainly agree with Mr. Cuming that it is a medicine worthy the attention of medical gentlemen, and this is all I would wish to say; for if the practitioners in Essex and Kent, hope to meet with a specific in white vitriol in the cure of ague, they will be miserably disappointed. I believe a sea voyage, or a long journey, will answer in those cases as a more powerful specific. I have always thought so; and indeed, to be candid, which I sincerely wish to be, I must say, that during the time the Northumberland Militia was quartered in Essex, that I never could cure the hardy Northumbrian, so long as the remote cause was constantly applied. The inhabitants resist the disease in a certain degree, perhaps from habit; and in them, the cure is less difficult.

Stamfordham, Northumberland, I am, &c.
December 19, 1803. WALTER SCOTT, M.D.

P.S. Zincum. The preparations of zinc are employed principally in external applications, as ophthalmics. Internally they have been recommended in epilepsy and other spasmodic affections, both alone, and with cuprum ammoniacum; and some think they prove an *useful* addition to the Peruvian bark in intermittents. Vid. Edinburgh Dispensatory, p. 265.

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* Zinc. calcinat. gr. vj. Chel. cancr. ppt. ʒiß. Sacch. alb. pulv. ʒß. m. f. pulv. in chartul. vj. dividend. capt. j. mane et vesperi quotidie.

To

To the Editors of the Medical and Physical Journal.

GENTLEMEN,

AT a time like the present, when the small-pox are so prevalent, the illustration of any cases, which may tend to avert or lessen an impending evil, appears to me important.

With this view I beg leave to lay the following before the public:

About a twelvemonth ago, Diana Deemar, a girl four years old, caught the infection of the small-pox. Her mother brought her to me, with her sister, Elizabeth Deemar, a child about eighteen months old, to the New Finsbury Dispensary, to which institution I was then physician.

Both children slept together in the same bed.

The variolous eruption in Diana Deemar was at the height.

Elizabeth Deemar had a puny appearance, laboured at the time under the hooping cough, and suffered much from dentition.

Notwithstanding these disadvantages and the little prospect of success, added to the risque of an imputation of blame being attached to my professional character, I recommended to the mother to have the child inoculated for the cow-pox. It was done.

In the course of the first week the inoculated arm had a promising appearance, and I was in great hopes of success. In this, however, I was disappointed, the part inoculated had inflamed, but did not exhibit the genuine characteristics of the vaccine pock, and by the tenth day the inflammation was almost gone. I would then have repeated the inoculation, but did not for want of vaccine matter.

On the 16th day from the inoculation, I procured some recent matter from the Bloomsbury Dispensary, with which I inoculated my little patient the second time. No symptoms of small-pox had hitherto appeared. In less than four days from the second inoculation, the genuine vaccine pock appeared on the arm where the first inoculation had been performed, and presented the appearance of what is usually observed on the eighth day of inoculation.

Shortly afterwards there appeared about seven pustules,

the greater number of which were on the face; all these died away within three days.

I would only observe, that in the above case there can be litttle doubt of the variolous contagion having entered the system, as appears from the spurious pustules, which subsequently shewed themselves; this was counteracted and rendered in a great measure effete by the first inoculation. It seemed to require, however, a second inoculation to insure the victory of the vaccine pock.

The sequel of the case is, the child soon recovered from the hooping cough, and every distressing symptom arising from dentition; and has in the course of the last twelvemonths enjoyed a much better state of health than she did prior to the inoculation.

The father's name is Joseph Deemar, who lives with his family at No. 11, Green Street, Theobald's Road.

On the fifth instant, I was desired to see a child named Elizabeth Roffy, nearly six months old, who was ill of the small pox, and the seventh day of the eruption. The child was suckled by a Mrs. Cave, who also gave suck to her own child, Mary Ann Cave, a girl about a month older than the other. Mrs. C. had also a son named John Cave, two years old.

I recommended to the mother to have her own children inoculated for the cow-pox, which was done the following day, the sixth instant. In a few days the usual marks of infection having taken place, appeared in the boy, and went through the common course. On the 16th, however, several pustules shewed themselves on different parts to the number from twelve to eighteen, all which died away in a few days, and never put on a purulent form.

In the girl, the inoculated parts seemed to be not a little inflamed the first five days, but disappeared on the seventh day of the inoculation, viz. the twelfth instant. On this day, the inoculation was repeated.

On the thirteenth, an eruption appeared on the face and different parts of the body, which left no doubt of its being the small pox, and which turned out to be of the confluent kind.

In this case the attempt to dislodge the enemy failed. I am of opinion, however, that the virus of the small pox, previously introduced into the system, was somewhat meliorated by the vaccine inoculation, and I entertain the hope that the child will utimately do well, at least this appears

appears to me to be the case on the day in which I now write, viz. the 22d instant.

On the 6th instant, Catherine Bold, a child four years old, was seized with the confluent small-pox of a very bad kind, and died on Friday the 16th instant.

The mother brought her brother, Edmund Bold, a child two years old, to the station of the Jennerian Society, in Castle Street, King's Mews, to be inoculated for the cow-pox, which was performed by Mr. Cullrune, of Pimlico, on the 12th instant.

I saw the child with Mr. Cullrune on the 19th. The inoculated arm had the usual appearance. A few days before, seven or eight pustules appeared on different parts of the body, but these had died away by this time.

The father, William Bold, a journeyman tradesman, lives at No. 7, Old Round Court, in the Strand.

On the 24th ult. Elizabeth House was seized with the small pox, which made their appearance on the same day. She died on the 4th instant.

Mr. Diamond, of Holborn, who had been consulted on the occasion, recommended to the mother to have her little boy, about eighteen months old, inoculated for the cow-pox. This was performed, I believe, by Mr. Waschel, of the Small-Pox Hospital, on the 2d. instant.

The inoculated arm discovered the usual appearances of the infection having succeeded.

On the 11th instant, the small-pox made their appearance, which were very distinct and rather numerous; these turned however on the seventh day, and the child underwent a mild disease.

On this case I would observe, that both the infections seemed to have contended for victory, and between them it may be said to have been a drawn battle.

To the above cases, I beg leave to subjoin one of the casual cow pox; it is meant as an answer to the few sceptics who still doubt the efficacy of the vaccine pock, and by whom I have heard it stated that the cow-pox was only a security against the small-pox for a few years.

It is needless to add that the objection was made without any foundation; and I trust that, ere long, such opinions, like the clouds vanishing before the splendor of a meridian sun, will be annihilated before the cause of truth.

About fifty years ago, a Mr. Packer was a servant to a farmer in Brydon Forest. He was then employed daily in milking ten or twelve cows. In this business he was

 affected

affected with the cow-pox in one of his hands, and underwent rather a severe disease.

Sometime after he went and lived as a servant with a Mr. Byam, surgeon, in Cirencester.

Mr. Byam going to inoculate his own child for the small pox, proposed that Packer should also undergo the operation, which was done, but he did not take the disease. He was afterwards exposed on different occasions to the variolous infection, but was never affected by it. He was much at a loss to account for it until within these few years.

The old gentleman now lives at No. 3, North Street, John Street, Tottenham-Court Road.

I am, &c.

ALEX. ABERDOUR.

Prince's Place, Lambeth,
December 22, 1803.

P.S. The prognostic which I gave respecting the child Mary Ann Cave, has been verified. The pustules contained a reddish kind of serum, and none of the brown yellow purulent matter of the small-pox. Their figure was a medium between the flattened surface of the vaccine pock and the conical apex of the distinct small-pox.

The secondary fever ushered in by a few short rigors, was of short duration; the fœtor, the tumefaction of the face, and the salivation, which attend the confluent small-pox, were wanting in this case.

The common saline mixture with small doses of antimonials, gentle laxatives, an attention to cleanliness, and the antiphlogistic regimen, constituted the whole of the treatment. Blisters and opiates were unnecessary. The breast supplied the child with her only food.

Out of several hundred cases of confluent small-pox, which I have in the course of practice had occasion to see, this case is without exception the mildest confluent disease I have ever witnessed.

From the cases above related, I am decidedly of opinion, that practitioners have it in their power to arrest the progress of small-pox, although the disease may have entered into a family. The chief obstacles are the prejudices which still exist among the lower classes of the community.

A Case

A CASE OF AMAUROSIS *succesfully treated by* ELECTRICITY; *communicated by* MR. RICHARD SMITH, *of Chertsey, Surry, Member of the College of Surgeons.*

MRS. WILLISON, aged 37 years, by trade a straw hat maker, of a nervous irritable habit of body, afflicted likewise with dropsy of the ovarium, and labouring under complete ischuria for three years past, was attacked on the 12th of November last with a pain in the right eye, without any appearance of inflammation, (for some weeks previous to this she had found her eyes weak.) Conceiving it might arise from unusual exertion in her business by candle light, I recommended her to abstain from work a day or two, and use a slight vitriolic collyrium.

Nov. 14. Found herself incapable of elevating the eyelid, the pain had likewise affected the other eye; complained of a violent throbbing pain in the head, very different from a common head-ach she is sometimes troubled with, appearing to be, by her description, about the region of thalami. nerv. optic. the pulse slow and very full. In the evening she was incapable of raising her head from the pillow; both eyelids were now closed. On separating them, I found the pupils much dilated, and the retina insensible to the light of a candle placed close to the eye. Finding circumstances thus, I immediately took away ℥xij of blood from the arm, applied leeches to the temple, a blister to the crown of the head, and one behind the left ear; gave her calomel gr. ij. 4tis horis.

15. Found herself the same. Blisters having discharged well; I kept them open with cerat. canth. and gave her the following draught, as she was extremely low.

℞. Tinct. castor. et valer. am. a ʒj. infus. cascarillæ ℥jss. f. haust 6ta. quaque hora sum cum pil. supra.

She pursued this plan without any apparent benefit until the 25th, when I was anxious to try the effect of electricity. Presuming the seat of disease to exist in the brain, I doubted the power of the electric aura to reach it; after a few sparks about the head and eyes, I directed some smart shocks through the brain, which gave, as I expected, much pain; I then left her until the following morning,

26. When I found the result to have exceeded my expectation. She had perceived a slight ray of light, and thought her head easier than the preceding day; in the evening I repeated the shock.

27. Found

27. Found her much better; could elevate the eyelids a little, and perceive light.

28. Much better; she now perceived large objects in the room, as the chairs, &c.

Dec. 1. Vision so far restored as to render the application of electricity unnecessary, as she could now perceive the smallest object, and was able to pursue her work; finds no inconvenience but from unusual exertion at her business, to which she is sometimes obliged to submit for the support of a young family.

How far the medicines might act in the above case, may be worth consideration; I think it fair to impute the success to electricity alone, since the other applications produced no beneficial effect until the shocks were made use of.

Electricity has been employed in similar cases without success; but as the manner of using it has generally been the slightest possible (i. e. the aura) I trust the event of this case may give encouragement for pursuing the more powerful remedy of the shock, which may be sent through the brain without apprehension of any unpleasant circumstance accruing from it, consequently may affect the origin of the optic nerve, usually the seat of this disease.

January 1, 1804.

On the Effect of the Nitrous Vapours *in preventing* Contagion, *and arresting the Progress of* contagious Fevers; *by* Mr. Charles Gimbernat, *of Madrid.*

THE public are indebted for the very useful discovery of applying nitrous vapours for the purpose of destroying contagious miasmata to the celebrated Dr. C. Smith, whose interesting work I was induced to translate into the Spanish language on the approach of a dreadful epidemic, imported into Cadiz in the year 1800 by a vessel from America, by which the whole province of Andalusia was gradually attacked, and which proved exceedingly fatal. I added to the translation, a direction for obtaining the nitrous acid pure and in white fumes, and for preventing the generation of the oxydated azotic gas or the orange-coloured fumes; this being a very essential point of the operation, as the fumes of the pure nitrious acid only, may be breathed without any trouble or danger; and I concluded

ed with examining all the means hitherto proposed for purifying the atmosphere, and adding my reasons, why I thought the pure nitrous vapours to be the most preferable in inhabited places. The Spanish government, to which I had presented my work, resolved to elect two celebrated professors of Madrid, Messrs. Queralto and Serrais, who were to try the nitrous vapours in the alarming epidemic of Andalusia. These gentlemen having accepted the dangerous commission, repaired to Sevilla, where the malignant fever had carried off more than 12000 persons, and where the daily increasing mortality entirely overbalanced all medical assistance. On the day of their arrival in the city of Sevilla, Mr. Serrais was attacked by the fever, and two days after he fell a sacrifice to his zeal and the offices of humanity. Mr. Queralto, more fortunate than his colleague, luckily recovered from an attack of the epidemy, and immediately took the proper measures for employing the nitrous fumigations in one of the largest hospitals of the town, which was crowded with a great number of patients.

In order to put the use of the fumigations to a fair trial they were at first used only in one quarter of the city, and no other change was made in the mode of treatment which had hitherto been employed. The success however exceeded the most sanguine expectations, as the progress of the contagion was not only stopt from the very day the nitrous fumigations were adopted, but no patient was afterwards attacked by the fever in any part of the hospital. The fumigations proved also an excellent medicine to the patients; for all who lay in the wards, where the fumigations were continued day and night, found instant relief, and most of them recovered within a few days; instead of 12 persons dying every day in the hospital, as was usual before the application of the nitrous vapours, the number decreased soon after to only one in a day. Such a happy success could not fail of producing the greatest confidence in the fumigations, which were now used throughout the town, and soon adopted over all the province. In the space of three weeks the city of Sevilla, and in less than two months the whole of Andalusia was freed from the devastation of this dreadful epidemic. The confidence on the purifying property of the nitrous acid was pushed so far, that Mr. Cavanellas, surgeon to St. Luke's hospital, of Sevilla, having exposed the clothes of a person, who died with all the symptoms of the highest contagion, to the action of the nitrous vapours, put them upon his skin for

for one day and a night, without experiencing the least contagious effect. It was generally found, that the nitrous fumes, mixed with the atmospherical air, occasioned no trouble to the breathing person, which is not the case with the simple muriatic gas, and much less with the oxygenated gas,. both of which violently attack the organs of respiration; on which account they cannot be safely employed in inhabited places, but only for purifying wards from which the patients have been previously removed.

Dr. Smith's method has been altered by Mr. Queralto, this gentleman effecting the decomposition of the nitre in the cold, and not employing any heat, as has been done in the experiments made in England, and by which oxygenated azotic gas is frequently disengaged instead of nitric fumes; because, any surplus of heat is capable of separating the affinity which unites the oxygen with the azote.

This circumstance, however, is not to be apprehended, when the decomposition is undertaken in the cold, and in small quantities, whereby the nitrous acid will be volatilised, without being decomposd by means of the heat disengaged through the sulphuric acid penetrating the kali. The reason why the nitrous vapours do much less affect the organs of respiration than other acids, is perhaps because they are composed of the same constituents as the atmospherical air. It may be likewise suggested, that the nitrous vapours are of all others the best appropriated for destroying contagious miasmata, because they are not a permanent elastic fluid or a true gas, but mere fumes, volatile by means of the heat, which, when cooled, are condensed round all bodies, penetrating their interstices and surrounding their surfaces with an acid; and from this condensation the perfect neutralization of all the atoms of the contagious matter must be derived. But whatever ground these conjectures may have, it is sufficiently proved by the evidence of facts, that fumigations with nitrous acid are capable of destroying in a short time the contagious matter, by which malignant fevers are occasioned; that the organs of respiration remain unaffected; and that Spain, and perhaps Europe, derives the greatest benefit from their effect, in escaping the terrors and devastations, which so often alarm the United States of America.

OBSERVATIONS *on the* USE *of* CELANDINE *(Chelidonium) in the* VENEREAL DISEASE, *by Professor* WENDT, *of Erlangen.*

THE expectations of medical men have been so frequently frustrated, in respect to the discovery of a medicine for the venereal disease, which might serve as a sure substitute for mercury, without being attended with the disagreeable consequences often observed after the continued use of mercurials, that the introduction of any new remedy to accomplish the much desired purpose has always been received with prejudice. However, the results of experience, relative to this subject, are extremely contradictory; and while some physicians assert they have cured many venereal patients by the sole use of vegetable and similar remedies, the observations of others are calculated entirely to discredit them; a fate which the famous decoction of Guajar, so greatly praised by an early writer on the venereal disease, Chevalier de Hutten, has shared with Astragalus exscapus, Clematis erecta and vitalbæ, Sarsaparilla, Dulcamara, Carex arenia, Nitric-acid, &c. Although I cannot account for these results, yet they appear to me to prove, that no certain evidence is given for or against the use of such remedies, which may be considered as decisive on either side; it might therefore, even from this circumstance, be excusable in venturing to publish another; the more so, if it be approved by experience and the evidence of facts.

The remedy I allude to is the common Celandine (Chelidonium majus, L.) which plant has long been celebrated in several disorders, and which I know, from my own practice, to be an excellent medicine in obstinate agues, obstructions of the liver, jaundice, exanthemata, &c. I had, however, never employed it in the venereal disease till I was accidentally informed that Dr. Hechtel, of Bayreuth, made an extensive use of it in the cure of that disorder. Accordingly, I gave the Celandine a trial by employing it in about twenty cases, wherein I succeeded far beyond my expectation. Although I was greatly importuned to make the remedy known to the public, I withheld the discovery for the following reasons: First, because the cases in which I had successfully employed it, did not seem to me wholly sufficient for ascertaining the fact; Secondly, because I imagined my patients might have used mercurials before the time they applied to me, or even

during

during the period they were under my care; an imposition which not unfrequently happens to physicians; and, Thirdly, because I did not think myself entitled to make public a remedy which I knew was kept secret by Dr. Hechtel, without having previously obtained his permission. I therefore wrote to the Doctor, and acquainted him with the means by which I had procured information respecting his remedy; I also related to him the successful use I had made of it, and intimated to him that it would be of infinite utility were the medicine published for the benefit of the community. In a few days after the Doctor returned the following answer.

"I have used that remedy (celandine) longer than eight years, during which time it has done me the greatest service in more than fifty cases, some of which were so obstinate, as even to withstand the effect of mercurials. I order pills, of two grains each, to be made of the extractum chelidonii and the radix chelidonii, and I prescribe my patients two in the morning, and two at night, increasing the dose by degrees from twenty to thirty, which are taken twice pro dosi; afterwards I gradually diminish the dose in the same manner I had increased it. In some of my patients the remedy would cause a diarrhœa, which I arrested by discontinuing the medicine for some days; while, in others, it produced profuse sweats, a symptom I always disliked, as it considerably retarded the cure. I shall be glad if you will undertake the publication of a remedy, which is approved by your and my own experience."

Much, however, as I rely on the evidence of so able a practitioner, I am far from thinking his remedy to be infallible, yet from the success with which it has been given, both by him and by me, it seems to be deserving of farther trials, and it would afford me particular satisfaction, if I could persuade medical men to examine this remedy in their practice, and afterwards to communicate the results, whether successful or unsuccessful, of its internal application.

In summer I generally give the juice of the radix and herba (succus expressus) with honey, and diluted with water; first, in the dose of a tea-spoon, gradually increasing it to a table spoonful, which dose I order to be continued till the cure is finished. In autumn and spring I employ the succus expressus radicis chelidonii; and in winter, the extract, which is generally made of the whole plant. But as most persons dislike taking expressed juices, I generally give the following pills:

℞. Succi

℞. Succi recenter express. hb. et rad. chelidonii majoris aa. unc. iij. inspiss. leni caloris gradu ad consistent mellis. dein adde pulver. radic. chelidon. major. q. v. satis ad consistentiam massæ pilularis; ex qua formentur pil. pond. gr. ij. consper. pulver. lycopodii. serv. usui.

Of these pills I order two to be taken in the morning and evening, daily increasing the dose by one pill, till I have raised the dose to ten pills, which I continue till the cure is completed. I have often employed the herb and the root, each separately, and the latter appeared to me more efficacious. If it be intended to quicken the cure, I prescribe the pills to be taken every three hours. I have not yet observed any symptom, which could prejudice the use of this remedy, as diarrhœas, sweats, or salivation, but only found that in some cases it diminishes the appetite, which however is easily remedied by stomachics.

Case I. A stout labourer, aged thirty-seven, applied to me for assistance. As he complained of violent pain in the right testicle, which was extremely swoln; the pains extended to the crista ilei and the perinæum, and the glandulæ inguinales were likewise swoln and painful; I immediately ordered a suspensorium to be applied, and gave him the pills in the manner I have mentioned. The first four or five days no abatement in the pains and swelling could be observed; but after this time both complaints considerably decreased, and a gonorrhœa supervening, the pains and swelling almost entirely ceased. Having continued the remedy about three weeks, he recovered so far that he could again follow his business.

Case II. The wife of the last mentioned patient, who had most probably been infected by her husband, complained of a burning sensation which she felt on discharging her urine, of pains in the throat, and of hoarseness. On examining her, I found several ulcers behind the tonsils; I ordered her to gargle with water and honey, and gave the pills of Chelidonium. When she had continued them about five weeks, she found herself cured.

Case III. A boy, fourteen years of age, who was born of venereal patients, complained of pains in the inguinal region, and some time after a swelling was observed in the right side, on which a surgeon applied a plaster; but the swelling and pains increasing, the tumour broke, and then formed an ulcer, on which the emplastrum diachylon sim-

plex

plex was put. When he was brought to me, I found the ulcer very foul, and discovered similar ulcers in the fauces. He was directed to gargle with honey and water, the ulcer in the inguen to be dressed with four parts of unguent. dig. off. and one part of unguentum Ægypticum; and internally he took the pills of chelidonium. By this treatment he was cured in the space of four weeks; but having afterwards caught a violent cold, which threatened a relapse, he had recourse to the pills, and was entirely freed from his complaints.

Case IV. With the same success I cured a young man of a phymosis, applying at the same time some external remedies, particularly the balsamus sulphuris, prepared with oleum lini, with which the swelling of the prepuce was dressed, and I injected likewise a decoction of scordium between the glans and the prepuce.

Case V. A young man, aged nineteen, being infected with the venereal disease, committed himself to my care. After the disease had lasted for ten days, during which time he had used a decoction of sarsaparilla and graminis without any avail, I found three ulcers on the prepuce, one of which had eaten very deeply, and several complaints were observed in the fauces; the tonsils and uvula were swoln, and covered with a yellow purulent matter. In order to try the effects of chelidonium I employed no mercurials, but prescribed the following pills.

℞. Extr. chelidon. maj. dr. jß. f. pil. ponder. gr. ij. consp. pulver. hb. chelidon. D. S. two pills to be taken in the morning and at night.

For gargling I recommended oxymel simplex with water, and the ulcers I covered with dry lint. Three days after he got much better, the complaints in the fauces had entirely ceased, the ulcers of the prepuce had a better appearance, and were cleaner; but about this time the patient having heated himself with wine, had a great deal of pain in the inguinal glands, which began to swell. I applied on them pieces of linen spread with extractum chelidonii, and ordered six pills to be taken every day, by which means I not only removed this new complaint, but the ulcers were cured in less than three weeks. The patient however continued the medicine a fortnight longer, and was then completely cured.

Case VI. A young man, 23 years of age, who two years ago had been afflicted with complete lues, in which he was treated

treated by a barber, retained a purulent running of the urethra, which was extremely troublesome. I prescribed him three pills per day of the chelidonium, which having continued some days the running began to diminish; but as it again increased, I raised the doses from four to six, whereby the gleet gradually decreased; after some weeks it entirely ceased, and has never since returned.

Case VII. A girl, eighteen years of age, had every symptom of venereal infection, difficulty of swallowing, swelling of the palate, pains in the urethra, &c. I accordingly prescribed, Extr. chelidon, dr. ij. pulv. cort. Peruv. q. s. ut f. pil. pond. gr. ij. consp. pulv. cinnamonni d. s. six pills to be taken every day, and gradually to increase the dose. When she had used this medicine for about a fortnight, all the venereal symptoms gradually disappeared, and the patient finding herself recovered, could not be prevailed upon to continue the medicine any longer.

Case VIII. Another woman complained of the same symptoms as the last mentioned patient, though in a less degree. I prescribed as follows: Extr. chelidon. dr. ij. taraxaci dr. ß. pulv. cort. Peruvian. q. s. pilul. ponder. gr. ij. consperg. pulv. cinnam. I ordered her at first to take six pills a day, but by degrees to increase the dose to twelve, and she had hardly consumed the prescribed quantity, when she found herself free from all the venereal symptoms.

In all these cases I employed no other medicine than the chelidonium, and it surprized me therefore, when I met with several cases in which I gave this efficacious remedy without effect. It so far discouraged me, that I gave up all thoughts of farther employing it in the venereal disorder. Considering, however, that the ill success which happened to me in several cases might be owing to the inordinate use of that medicine, which patients of this kind are very apt to, and to the disorderly manner of living so frequently observable in venereal subjects, but particularly at the request of some of my friends, I again had recourse to that remedy. I also determined to make a trial of the chelidonium glaucium, L. or yellow-horned poppy, a plant frequently cultivated in our gardens; and I had the satisfaction of curing several cases without the assistance of any other medicine; in some, however, I used mercurials externally. I either gave the fresh succus expressus of the

root

root and herb in the dose of a tea spoonful every three hours, or in form of extract, viz. Extr. chelidon. glaucii q. l. pulver. glycirrhiz. q. s. ut f. pil. ponder. gr. ij. involve pulv. fab. d. s. two pills to be taken every three hours. This dose I gradually increased, as circumstances allowed; it would sometimes cause vomiting and diarrhœa, in which case I diminished the dose. For gargling and fomentations in phymosis and paraphymosis, and for washing the ulcers and warts, I applied the juice of the same plant or the extract, both diluted with water.

Case I. A young woman was affected with venereal ulcers in the fauces, and ulcers and warts of the genitals, which even extended to the anus; at the same time she had a very malignant fluor albus. After having used the chelidonium glaucium, in the manner just stated, internally and externally, for about three weeks, the ulcers began to heal, and the warts to dry and to fall off; the fluor albus diminished and became less corrosive.

Case II. With the same success I employed the chelidonium glaucium in a case of phymosis, and chancres of the genitals.

Case III. A young man was afflicted with a very bad paraphymosis, in which the glans was swollen to an enormous degree; the opening of the urethra was so compressed that not even the smallest bougie or catheter could be passed, I therefore proposed the operation for paraphymosis, with which however the patient would not comply. I then ordered the parts to be fomented with warm milk, and by degrees with diluted extract of chelidonium, and gave him the pills, by which treatment the patient gradually recovered in the course of five weeks.

Case IV. A gentleman, aged fifty-six, had frequently exposed himself in his youth to venereal infections, after which he had retained a hardness and tumour of the right testicle, a curvature of the urethra, and a gleet, which frequently returned. These circumstances however did not prevent him from marrying and having several children; and though these symptoms could not be considered as venereal, he wished to get rid of them. I accordingly gave him the pills of chelidonium glaucium, increasing the medicine till he took ten at each dose, which after some time completely relieved him from those complaints.

To

To the Editors of the Medical and Physical Journal.

GENTLEMEN,

THE chief source of dispute respecting the action of opium on living animals has been the question, whether it is a stimulus or a sedative? On the subject of stimulus and sedative so much has been written, that it seems at first sight that nothing new can be said on it. If, however, the attention be directed rather to the phenomena of animal life than to prevalent opinions, we shall, I think, be led to conclusions in some respects different from those hitherto advanced.

By stimulus is meant that which excites, by sedative that which depresses, the powers of life. The late Doctor Brown maintained, that the idea of a sedative is unfounded; and that wherever a depression of the powers of life takes place, it is the consequence either of the abstraction of stimuli or excitement. But has not death been the immediate consequence of a large quantity of spirit of wine suddenly received into the stomach, of some of the passions, &c? We also find loss of power, without previous excitement, the consequence of agents whose action is confined to, or chiefly exerted on, the muscular system. When a considerable quantity of an infusion of opium or tobacco is thrown into the heart of a frog, it does not excite violent contractions followed by a loss of excitability, but instant paralysis.

Laying aside Dr. Brown's hypothesis, shall we find the prevalent opinion, which divides all agents into stimuli and sedative, more consistent with observation? We see the foregoing agents, the passions of the mind, opium, tobacco, &c, acting as sedatives; where then are we to look for stimuli? To the same agents; for all of them, if applied in a less degree or quantity, excite the powers of life. A small quantity of spirit of wine received into the stomach, occasions excitement. There is no passion which may not act as a stimulus; fear itself, when not in such a degree as to overcome the powers of life, gives temporary vigour. It is unnecessary to allude to the numberless experiments and observations, which prove that opium and tobacco, applied in small quantity, occasion excitement.

The same, I believe, will be found true of every other agent. Applied to a certain extent, they all excite the powers of life; beyond this they depress or destroy them.

If so, we cannot regard any agent as merely stimulant or sedative. It is true that some possess more of the stimulant, others of the sedative power; but all seem capable of producing both effects. And that the latter effect is independent of the former appears from this, that the one bears no particular proportion to the other, which, were the sedative a consequence of the stimulant operation, would be the case.

Opium then, like other agents, acts both as a stimulus and a sedative, according to the quantity applied; and this seems to be a principal cause of the difference of opinion which has prevailed respecting its operation. But whether it is received into the circulating, or acts only on the nervous, system; and on what parts of the system it makes its impression in producing each of its effects, can only be determined by experiments made for the purpose. The limits of this Paper will not permit me to enter into a detail of these experiments, for which I must refer to an Essay published some years ago, or a volume which will soon appear, and the works referred to in them; and here confine myself to the general result.

From these experiments it appears, that the effects of opium on living animals may be divided into three classes. Its effects on the brain, on the heart and blood-vessels, and on other parts of the system.

The last do not essentially differ from those of other local irritations. A powerful impression made on the nerves of the stomach is sufficient to destroy life. But opium, although the impression made on the nerves of the stomach by a large dose is very considerable, seems never to occasion death in this way.

The effects of opium on the heart and blood-vessels are that of increasing their action when applied in small quantity; and that of impairing or altogether destroying it, when applied more freely: effects differing in degree but not in kind from those of other agents.* It does not appear that the quantity of opium absorbed by the lacteals from the largest dose, is sufficient to destroy the muscular power of the heart merely by its action on that organ. It may safely be asserted, that opium never kills by destroying the muscular power of the heart, except when a large quantity is injected into it, or into the blood-vessels.—

Opium

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* The effects of opium immediately applied to any other muscle are the same.

Opium received into the stomach, therefore, never induces death in this way.

It is ascertained by the experiments alluded to, that the action of the strongest solution of opium, applied to the heart, is merely local; it destroys the excitability of this organ, but it produces no other effect. The excitability of all the other muscles remains unimpaired. It is almost unnecessary to observe, that I here speak of the effects of opium when it is confined to the heart; if it is allowed, in the course of circulation, to pass to the brain, it produces those effects which have been ascribed to its action on the nerves of the heart.

The effects of a small quantity of opium, applied to the brain, are similar to those of other gentle impressions made on this organ, but more powerful, impaired sensibility, languor, sleep. Applied to the brain more freely, it produces effects similar to those of other violent irritations, convulsions and death. And this, it appears, is the way in which opium proves fatal. It is taken up by the lacteals, and, in the course of circulation, applied immediately to the brain. According to the quantity thus applied, it produces sleep, convulsions, or death; for opium, even in the human body, does not always prove fatal when it induces convulsions.

I am, &c.

Worcester, Jan. 12, 1804. C. PHILIPS WILSON.

To the Editors of the Medical and Physical Journal.

GENTLEMEN,

IN the Med. Journal, No. 59, p. 551, there is a Case related by Mr. Dunn, which he asserts to be phthisis pulmonalis, and that he cured it by digitalis. "E. Coulston, about five or six weeks from (I suppose he means before) the commencement of this history, had been attacked with fever of an inflammatory nature. She had been bled by a medical gentleman two or three times, and taken nitrous medicines; that an affection of the lungs took place, plainly evincing a translation of morbid matter to those organs; that blisters and nitre had been used to little purpose."

The above is an imperfect account of the origin of the disease. We are not told whether the fever was attended

with topical inflammation or not; nor, if there was, where it existed; whether pleuritis, or hepatitis; nor where the blisters were applied; nor from whence the morbid matter was translated to the lungs.

Mr. D. goes on to describe (he says accurately) the condition in which he found her on the 24th of June, 1803, six or seven weeks after the commencement of the disease, "A violent cough, great pain, and spasmodic action of the diaphragm, drawing in the scrobiculus cordis; a rattling noise in the throat; expectoration of a great quantity of thin matter; (was it purulent?) great emaciation, yellow countenance, hectic flushes, colliquative diarrhœa, dyspnœa; pulse quick, hard; loss of appetite, pain in lying on the left side."

I suspect the disease in the lungs to have been a secondary affair; and from the complaints about the diaphragm, scrobiculus cordis, yellow countenance, and, as he afterwards says, "the drawing in of the umbilicus, which all along had been productive of great pain and distress in coughing," I am inclined to believe the original disease to have existed in the liver, as the parts principally affected are closely connected with that organ.

He gave "gtt. ij. tinct. digital. every four hours in an oleaginous mixture with a small quantity of nitre.

June 25, gave gtt. iij. every four hours.

26. Ditto.

27. Cough considerably abated, diarrhœa almost gone, expectoration less, and thicker; feet swelled; gtt. iv. 4tis horis; cough worse in the afternoon, &c.

28. More cheerful, less fever and cough; had expectorated, since yesterday morning, a great deal of tough viscid phlegm, consisting of fibres and threads; complained of an itching in the nose and about the anus, with costiveness. He suspected worms in the intestines. Gave a purging powder.

29. The powder operated five or six times, and brought off a quantity of dark coloured fæces, and so black that if there had been worms they would have been indiscoverable; gave gt. vj. 4tis. horis.

30. Much better, all the symptoms relieved, more cheerful; slept a little, pulse about 70."

The state of the pulse now may be called a natural and healthy state, and is the first, and the only, time Mr. D. has mentioned the number of strokes in a minute through the whole of the case. From this day she recovered gradually

I mentioned

I mentioned my suspicions above that the disease originated in the liver; and, from its termination, I am inclined to think they were well founded. Whence the yellow countenance, so unlike the red and white in phthisis? Do disorders in the diaphragm attend phthisis? Was ever a phthisis pulmonalis cured or checked by 90 drops of tinct. digitalis in four days? Did ever phthisis pulmonalis cease on the discharge of a quantity of dark coloured fæces? The last mentioned circumstance requires some investigation.

Mr. D. says there existed a colliquative diarrhœa on the 25th. I wish to know where the black fæces were lodged at that time, which were discharged on the 28th? They could not be within the intestinal tube; they must have been confined in some corner without the tube; and there is no corner so likely as in the large obstructed vessels of the liver. I have attended many cases of obstructions of the vessels of the liver, and could always promise a recovery when fæces of a dark colour made their appearance. But as no notice is taken of the colour of the fæces before or after the 29th, the case is imperfect; which may be accounted for from Mr. D. viewing the disease as phthisis pulmonalis, and overlooking the cause of the principal symptoms, which pointed out to me a very different disorder.

Though I value the virtues of digitalis from the good effects I have witnessed in several cases, or rather in several constitutions, for it appears to have very different effects in the same disease in different patients, yet I do not expect that it will ever perform a miracle, such as the case above would appear to be.

If these remarks meet with your approbation, so as to be honoured with a place in your Journal, and if they should fall into the hands of the unknown gentleman who attended E. Coulston from the first, a few lines from him, describing the origin, progress, and symptoms during his attendance, would be esteemed a favour.

I am, &c.

Newcastle, Jan. 11, 1804. A. FOGO.

To the Editors of the Medical and Physical Journal.

GENTLEMEN,

A Temporary absence from home prevented me from seeing the Number of your excellent Journal for December last, till it was too late to expect that any thing then forwarded could be inserted, else the following statement should have reached you earlier.

I acknowledge myself flattered by the honour Dr. Kinglake has conferred on me by inserting the whole of the observations on cold water a second time. It must needs be a good story that will bear being twice told. The anecdote of the late Dr. Gregory, I had been in the habit of hearing so frequently repeated, even from my earliest years, by a person entitled to my utmost confidence, and one who was an intimate friend and a warm admirer of the liberal mind and manly virtues of the Doctor, that I never even doubted of its truth. Even the Editors of the Annals of Medicine allow, that such a report was prevalent in Edinburgh at the time of the Doctor's death, and which has not previously, to my knowledge, been contradicted. Dr. Kinglake's triumph does not seem very complete, even admitting the falsehood of the statement. Nothing more than a negative proof in support of his doctrine can be derived from it, as it only shews, that persons of a gouty diathesis are liable to sudden death, even tho' they do not plunge their extremities in cold water.

One reason of my addressing you at present, Gentlemen, is to express my regret at having been the cause of bringing the respected name of the late Dr. Gregory into question on so trivial an occasion; or of occasioning to the present, my much respected Master, the trouble of contradicting the statement. My error was truly unintentional; and I trust Dr. G. and his friends will consider this acknowledgment of it, as an adequate apology.

In considering me as hostile to medical improvement, Dr. Kinglake appears evidently to mistake the tendency of my observations. No man, who has taken upon himself the grave and important duty of superintending the conduct of his fellow creatures, during the melancholy visitations of bodily disease, could, I trust, be so deficient in the common duties of humanity, as to neglect or despise any species of information that would tend to mitigate pain, or shorten the duration of misery. No fault was imputed

puted to Dr. K. for attempting to cure the gout by the application of cold water. The effects of temperature in modifying diseased action, at present attracts much of the attention of the medical world; and when they have been more accurately determined by time and experience, will in all probability extend the dominion of regular science over the functions of the living body.

To extenuate the spirit of levity and wrangling which Dr. K. has discovered in the trifling article alluded to, I shall beg his leave to use the apology employed by Horace on a similar occasion.

> O! imitatores, servum pecus, ut mihi sæpe
> *Bilem*, sæpe *jocum* vestri movere tumultus.

What, in truth, moved my bile, was the pompous manner in which Dr. K. announced the application of cold water in gout as a novel practice, originating with himself, and for which he seemed hastily to solicit the applause due to a public benefactor. A little irony appeared not ill calculated to repel such an arrogant and unfounded assumption; but the Doctor, it seems, does not like a joke.

> Ludus enim genuit trepidum certamen, et iram:
> Ira, truces inimicitias, et funebre bellum.

With your permission then, Gentlemen, I will proceed to an investigation more serious, and more becoming professional gravity and decorum, concerning the validity of the Doctor's claim to originality in the application of cold water to the cure of the gout.

To begin at the beginning, that is, with Hippocrates, Aphorism 25, sect. 5, (I need not trouble you with the Greek text) are the following words. "Tumores autem in articulis, et dolores alisque ulcere, et *podagricos*, et convulsiones horum plurima, *frigida multa affusa et levat, et attenuat, et dolorem solvit*. Torpor enim modicus doloris solvendi vim habet. The same doctrine is repeated in nearly similar words in the chapter De humidorum usu.

Among the remedies recommended by Celsus, "De manuum et pedum articulorumque vitiis," we read as follows. "Si vero tumor calorque est, utilioraque sunt *refrigerantia, in aqua quam frigidissima articuli continentur*." Again, "Levat spongia imposita quæ subinde ex oleo, vel aceto, *vel aqua frigidissima* exprimitur."

But, to come nearer to our own times, did the Doctor, in the pursuit of his cold water lucubrations, never stumble on a work by HERMANUS VAN DER HEYLEN, entitled

Aquæ frigidæ inter inauditas et incredibiles alias effectus podagræ dolores vel sistentis, vel mirabiliter demulcentis, et ischiadicas dolores penitus extirpantis, &c." From an English translation of this book, now lying before me, I shall treat the Doctor with a quotation.

"After shewing very clearly, that pains of the gout are caused either by a hot humour, or by an acrimonious or salt one, proceeding from the liver, VANDER exclaims,—"But seeing it is confessed and assented to by all physicians, *that contraries are cured by contraries*, why may I not lift up my voice, and make use of my pen, in the just praises of this our cold water?"——VANDER also lays claim to the discovery of the use of cold water, tho' I do not believe he was ignorant of its having been recommended both by Hippocrates and Celsus, whatever Dr. K. may be. "But suppose," says he, "that the excellent virtues of cold water in the cure of this disease were never before discovered to the world; or that other its excellencies, in other the like cases, have hitherto been neither written nor heard of:" Suppose this, I say, must the vast abyss of physical knowledge, and the large stock of the wayes of *cures* have before this been necessarily exhausted and drawn dry? Is it impossible to say or write any thing that may be deduced out of the very principles of Nature, which may be of good use in curing of the diseases men are subject unto, and particularly of the intolerable pains of the gout and the like? Certainly there are divers, that having by experience found the excellent virtue of cold water for assuaging of those horrid torments of the gout, (which are a second hell) will be ready with a very grateful remembrance, publicly to extol the same." *Van* clearly deserves the palm for modesty; he only insinuates that he would wish to be considered as the inventor of the cold water system, but does not absolutely say he is so.

Smith's Curiosities of Common Water, a well known work, which has passed through many editions, contains abundance of recommendations in favour of the use of cold water in gout and rheumatism.

But putting aside those old fashioned books, has Dr. K. never seen the modern and truly excellent Treatise of Mr. Rigby on Animal Heat. In this work the local application of cold water in the gout, and in various exanthematous complaints, is treated of in a scientific manner, and illustrated by apposite cases and legitimate deductions.

In the sixth volume of the Medical Observations, some instances of the utility of cold in the gout, accompanied with

with many pertinent reflections by the person who was himself the subject of the experiments, may be found.

And now, Gentlemen, I will leave it with you to determine, whether any man, on the revival of a practice, which has been so frequently brought forward and again abandoned, (on good grounds or not is foreign to the present argument) be entitled to call out *eureka*, as if he were the first who had passed the pons asinorum.

Whatever may be the relative merits of the three remedies, the pump, the tincture, and the cold water, it must be allowed that there was a singular coincidence in their being ushered into public notice much about the same time. Nor do I think it shewed any very reprehensible degree of timidity in a man, whose daily bread depends on his assisting poor human nature to contend against the gout, and the other various ills that flesh is heir to, to express some degree of alarm at the combined appearance of three remedies, each in its single unaided strength promising to extirpate a complaint, whose existence has in all ages contributed so liberally to the support of every branch of the faculty, and the more so, as it commonly singles out its victims among the rich and the timid. Those fears have now indeed, in great measure subsided. Of the pump not much is heard. The tincture, though if uncontradicted rumour spoke true, supported on the wings of a genius,

Vitreo daturus
Nomina ponto,

Is gone to the tomb of all the Capulets, and is now less heard of, and probably less employed, than Dr. Solomon's anti-impetigines. And though the celebrated Hoffman wrote a Treatise de Aqua Medicina Universali, the ravages of disease have not yet ceased to limit the numbers of mankind, nor do I believe that gout is exterminated from the face of the earth.

Conscious of having trespassed too long on your patience, I now take a final leave of Dr. Kinglake, impressed with a well founded confidence that he will, in future, entertain that kind of friendship and regard for me, which a man generally entertains for another to whom he feels himself under an obligation. Dr. K. through the medium of the Medical and Physical Journal, called for materials to assist him in making a book. I have furnished him with some, and pointed out the pregnant sources of others. The quotations I have inserted, require no other authority than a reference to the books from which they are extracted;

tracted; I shall therefore still request your permission to remain shrouded in my veil of "anonymous concealment," as Dr. K. very neatly phrases it. This determination is perhaps less the result of fear of my antagonist, than of a peculiar aversion to medical controversy. Though I will not pledge myself, that when the Doctor shall have published the book with which he has threatened the world, if I do not think his facts well established, and his deductions logical, I may not start up, propria persona, and endeavour, through the aperture of a goose's quill, to throw cold water on the whole. Till that auspicious æra arrive, I shall continue to regulate my practice in the gout as I have hitherto endeavoured to do, by the precepts founded on painful personal observation of the honest and judicious Sydenham. I am, &c.

A CONSTANT READER.

The following answer to Scepticus was receivd in the beginning of last May; but we then thought that such observations required no other answer than the very short one which appeared in the next Number. We now find however, that the same ideas are brought before the public with the pomp of a considerable quarto volume, written with great ingenuity and acuteness, and which excites very general attention. It is understood that elaborate answers to it are preparing; in the mean time we present our readers with the following short one to Scepticus.

To the EDITORS of the MEDICAL and PHYSICAL JOURNAL.

Gentlemen,

YOUR Correspondent Scepticus (see vol. ix. p. 356) has given the world some ingenious remarks on the *danger* of exterminating the small-pox. As this idea has at least novelty to recommend it, let us examine his arguments in the order in which they stand.

It is very true that "though the faculty cannot boast the honour of introducing inoculation for the small-pox, they warmly interested themselves in it." If by *warmly*, your Correspondent means to refer to the regimen with which they connected the new practice, his expression is much too *cold*. For though the noble lady to whom we owe the

 discovery

discovery, tells us that in Turkey the old women are the inoculators, and that *to take the small-pox* is, in that country, analogous to *taking the air*, yet no sooner did our physicians lay hold of the business than they shewed the *warmth* of their zeal by almost stifling their patients. Hence inoculation was in danger of being *stifled* in its birth; for though the practice was for the most part successful, yet the number of unsuccessful cases was sufficient to damp the courage of many very impartial thinkers.

At length the Suttons, under the pretence of a secret remedy said to be contained in their pills, introduced a more successful practice, which obliged all the regular faculty to look about them. At first they had recourse to the great danger which attends every bold innovation, and to discovering a few solitary instances in which the innovators had failed. But the public was not to be thus deceived, and the success of the Suttons was such as to secure them the reputation they deserved, till at last establishments were formed to which the young and old resorted, according to Lady W. Montague's expression, to take the air and the small-pox at the same time.

Matters now became serious. Surgeons kept their lancets only to bleed; physicians were no longer consulted for a complaint which had lost most of its terrors; and apothecaries neither sent in the preparative powders, the febrifuges nor opiates during the eruption and turn, nor the subsequent cathartics and sweeteners. Such a state of things could not long continue. The pills were analysed, and the cold regimen was discovered to be as old as Sydenham, though long since exploded by his *wiser* successors. Sutton therefore had no merit. His secret pills were no longer a secret, and his treatment was not his own discovery; still however the Suttons retained their character with the public, and their success entitled them to it, till by degrees their practice became universal, and every town, every village, had its stationary or its itinerant inoculator. At length an imperial physician and baron entered the lists, and the name of Sutton soon gave way to Dimsdale. It is but justice to add, that wherever Dimsdale is read, the name of Sutton will appear with not less respect than Æsop accompanies the elegant Phædrus.*

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* See Present Method of Inoculating, &c. by T. Dimsdale, M.D. 1767, Introduction, p. 5. In a subsequent pamphlet, I believe, Account of Inoculation in Russia, the Suttons are mentioned by name as first introducing the cold system.

But

But though the success of the Suttons and the sanction of the faculty, who now adopted their practice, had robbed the disease of many of its terrors, still a few solitary failures were sufficient to deter parents from undertaking this task. Your correspondent therefore conceives, that the encouragement to vaccination "breathes a higher tone of disinterestedness," but still disposed to suspect all men of some view to their own interest, speaks of medical men puffing off the "safety of the cow-pox in the public prints; and themselves obliquely, as the only beings who know how to manage it."

If your Correspondent is ever so much disposed to humor, there are certain moments when all men think it right to be grave in the midst of all their raillery; I must therefore be allowed to remind him, that in the Inventor of Vaccination we see nothing but the most enlarged philanthropy, the highest degree of liberality, and that attention to the importance of his profession which suffers nothing to escape him. None of that fury of forcing the practice down the throats of others, nor a hint that it can be better performed by himself than his groom. He is therefore not answerable for the "intemperate zeal of others," or for the manner in which *one writer* suspects the integrity of all who venture to doubt what he himself is afraid of asserting; who renders himself ambiguous by first declaring that vaccination never produces secondary *pustules*, and then, in a round about way, admits that secondary *vesicles* sometimes appear. But enough of this. Let us endeavour to relieve Scepticus from his other apprehensions, without attending to those puffs which seem to offend him so much.

As he has not pointed out the precise passage in Mr. Malthus's work, he cannot expect me to pursue the ingenious enquiry relative to the geometrically progressive increase of population and the arithmetical ratio of increasing the productions of the earth; I shall therefore only remind him of the rapid increase in the population of America, yet that she is still in a condition to supply the West India Islands and a considerable part of Europe with food. I know it will be said that America is different from Europe, because new land may be continually broken up, and even the increase of population may be exaggerated, since Europe, whom she feeds, loses a part of her inhabitants to increase those of the new Continent, and perhaps, as the whites increase in number, the ancient Aborigines become extinct. For argument's sake therefore we will admit Mr. Malthus's

propositions

propositions and the inference of Scepticus, namely, that new diseases arise to thin the ranks of mankind and equalize the principles of generation and production;" still it will not be difficult to prove, that "a due equilibrium between these opposing forces may be effected in spite of the idle interference of meddling man," in preventing or lessening disease; and this without "the necessity of war, pestilence, or famine."

I need not a better authority than that philosopher whose words are so often quoted, which he put into the mouth of the *great* King of Brobdignag. "Show me the man who will produce two blades of corn where one used to grow, and to him I will erect statues." This writer lived in an Island whose population is large for its extent, whose climate is less genial than our own, whose inhabitants are pecularly prolific, yet whose soil produces food not only for its people, but for the navy of Great Britain and some of our foreign settlements. It appears however as if this philosopher had been fearful lest Ireland should be over populous even in his days. With a sagacity therefore worthy of the author, we find him not proposing to disable men by the great pox, or to destroy children by the small pox, (practices more brutal than Chinese mutilation) but to turn this increased population to a good account, and to make an increase of offspring a real blessing to the parents. Let every poor man, says he, sell his first child to be killed and served up at his landlord's, his landlord's steward's, or the steward of that steward's table. By this traffic and sale, he will gain money enough to feed well his wife whilst she is suckling her second child, so as to enable her to fatten it sufficiently for the great man's table, and so on till advance of years puts an end to the prolific powers of the mother and the riches of the father. Surely such a practice is kinder than to suffer the poor infants to languish with a loathsome disease which renders them more troublesome whilst living, and useless when dead. I am aware that one source of astonishment to your Correspondent still remains unexplained; "that the faculty should wish to lessen the danger and mortality of a disease." 'Tis evident by this stupid astonishment that he is not of the profession. I know not therefore whether it will be considered as justifiable to admit him into all our mysteries: of this, you Gentlemen Editors must judge. It does not indeed, require much ingenuity to see, that a patient, like a soldier, can only be useful whilst living. The facetious poet therefore advises the latter to run away, that he may live to fight

again;

again; and every prudent practitioner recollects that at the death of a patient he receives no thanks but from his heir, who, how well soever he may be satisfied, has not always the gratitude to employ the person to whom he is indebted for the early possession of the estate.

Perhaps Scepticus will ask, why then should I sanction the horrid practice of child murder, if we have an interest only in the living? Forgive me, good Messrs. Editors, if I betray our order a step further, to satisfy the kind anxieties of one who is so much alarmed, lest we should suffer by our great disinterestedness. I need not remind you that the slaughter I propose is not indiscriminate, like that of the cruel Herod, but confined to the children of the poor. These, we well know, are more plague than profit. Even our most miraculous cures among them rarely bring us into fashion; we may therefore gladly save ourselves all this trouble by turning them over to other practitioners, whose time is respected in courts of justice like our own. But lest I should say too much, let me stop abruptly.

Your's,

CREDULOUS.

Some OBSERVATIONS *on the* PATHOLOGY *and* PREVAILING DISEASES *of* WARM CLIMATES; *by* A. PEARSON, *Member of the London College of Surgeons, and Surgeon in the Service of the East India Company.*

BEFORE proceeding to consider the diseases which are most prevalent in warm climates, it may be useful to take such a view of the state of the human frame in cold and in hot climates, and the changes induced by a removal from the one to the other, as our limited knowledge of the animal œconomy, and the action of external powers upon it, will allow of.

Among the inhabitants of the more temperate and colder regions of the earth, the natural constitution is that of muscular irritability and promptitude to action; the nervous mobility is not so great, the influence of that power being more equable, steady, and moderate. The solids are denser; of this there is a remarkable proof drawn from the fact, that between an European and an Hindoo or Chinese of apparently equal bulk, the difference of weight is very great, the former being much heavier. The blood contains

a greater

a greater proportion of crassamentum, and there is also a greater quantity of the circulating mass. The cuticular discharge and the biliary secretion are in smaller quantity; the power of absorption is greater, especially its action in the renewal of the solid parts of the body. The use of animal food and of fermented liquors is more indulged in, and with greater impunity. Such is the natural and the general constitution in cold climates; but adventitious modes of life alter that in very many individuals. Peculiar habits and employments, luxury and sensual gratifications, often induce the temperament of increased mobility and diminished tonic power in them and their progeny, which is in a great measure the same with that which is impressed by hot climates.

In changing from the cold to the hot climate, those effects are produced upon the frame which might be expected to arise from a constant and powerful influence acting upon an accumulated excitability, which heretofore had been accustomed to be obedient to the impression of less powerful stimuli. The circulation is increased and hurried, the respiration becomes more frequent; lassitude and languor are felt, with inaptitude to the customary employments and exertions; there is a greater susceptibility to nervous impressions, and the dispositions are more irritable; all the secretions are increased, the cutaneous and biliary peculiarly so, and the latter is also changed in its qualities, becoming more acrid. In the increase of these Nature has implanted a powerful remedy for the evils which would otherwise ensue, as, in the change taking place in the act of secretion, the fluids produced combine with a greater portion of the heat, and the temperature does not exceed 96° of Fahrenheit, whatever may be that of the surrounding atmosphere. There is also, for the time, an increased action of the absorbents, manifested by the disposition to costiveness.

In this first state, then, diseases of inflammation and of excitement will be produced, and are found to occur. A continued exposure to the effects of heat at length induces a different state of the frame. From the stimulus impressed being stronger, and from the actions of the vessels of the skin and system being greater than in a due proportion to the strength of the vital powers, or to the degree in which the muscular irritability is renewed by the actions of the system, the ultimate effect is relaxation of the fibre, and an irregular or weakened performance of the functions of the different organs. The law of the œconomy is fulfilled,

filled, by which it appears that as debility increases, nervous mobility becomes greater also. Where the effects of climate are aided by the abuse of spirituous or fermented liquors, this irritability of frame is increased to a very great degree, and extends itself to the dispositions of the mind.

It may be of some use in illustrating the effects of climate, to advert to those of excessive stimulation from inebriety frequently repeated; and though, as will be shown afterwards, the analogy between the two is not complete, there is a considerable similarity in the state of constitution induced by both. Muscular action is by repetition strengthened, and more readily performed; that of the organs of sense or power of receiving sensual impressions is by the same means diminished. The pleasurable feelings of intoxication, as produced by the application of the liquor to nerves of the organ of taste, by the increased actions and secretions of the vessels and viscera, or by those perhaps of the sensorium itself, by combinations of the memory and imagination, are at length exhausted, and not to be again called forth; the muscular coats of the vessels are more readily induced to act, but their action, though rapid, is enfeebled, desultory, and easily interrupted.—Sometimes it is stopped, or nearly so; but this happens most readily in the lacteals and absorbent lymphatics, then giving rise to atrophy. The digestion is impaired, and the appetite irregular; the biliary secretion is at times suspended, at others increased, and probably vitiated in its qualities: the gastric secretion is most frequently vitiated. A similar libration betwixt increased and suspended action takes place in all the functions; in those also of the sensorium, on which the state of mind depends, there is an obtuseness of perception with regard to objects of external and internal sense, or to those which interest the generality of mankind, with a frequent occurrence of violent emotions from slight causes. A degree of fever becomes habitual, there is a sinking in of the abdomen, wasting of muscular substance, chronical inflammation and scirrhus of the glandular viscera, and painful sensation in parts where no sensation ought to be felt.

Such a state of health being brought on by residence in hot climates, and also being frequently met with in our own, occasioned by excessive stimulation from other causes than heat, leaves us at a loss how much to ascribe to the effect of a high temperature; the more so, that few reside in these countries without combining the application

of

of both these hurtful powers. When the constitution has not been injured by excess in the individual, or the effects of it entailed by his progenitors, it is probable that the order of things, which has rendered an intercourse between different climates necessary, has in the œconomy implanted the power of making the change without a sacrifice of the blessings of healthful existence. We find accordingly, that observing a regimen nutritious but not stimulating, and other attentions to the juvantia and lædentia, enable many individuals to suffer it without much injury; while, perhaps, nothing can account for the Orientals having existed so long as nations, to a certain degree civilized, and their having made considerable progress in the arts of life, and even in science, but that an attention to such observances has been imposed upon them, and maintained by the tenets of their religion. It is certain that, in general, a few generations of Europeans terminate that race, and that their mental and moral existence is not even so long protracted; at least, an attention to what has happened among the nations who, in their turns, have had the dominion of the East, would suggest that inference. The density and irritability of the muscular solid, the firmness of mind connected with that, and the advantages of higher civilization, give the Europeans many advantages, which are rendered more permanent by the influence of habit; but their descendants could not retain this pre-eminence, were it not for recruits from the more northern regions.

It will perhaps be easier to specify the precautions to be observed in making the change of climate, than to point out their modus operandi, or the exact method in which the change of climate renders them necessary, and the rules for preserving health will vary according to the different constitutions, periods and habits of life; I will however take for granted that there is nothing peculiar in these respects.

In the first change from a cold to a hot climate it was formerly the practice to bleed indiscriminately; it is now perhaps too generally omitted, as it might be often employed to obviate or remove disease arising from inflammatory congestion. Purging has also been recommended for universal adoption; and when we reflect that the constitution both admits and requires this evacuation more frequently in warm than in cold climates, and bears it better, its utility will be found as probable as experience proves it to be. The neutral salts have generally been prescribed, and these are certainly of the most universal application, and use

Inf. sennæ et tamarind. p. rhei. et kali tart. separately or combined, ℈j to ℥ß of the former and ʒj to ʒij. of the latter, will be best for frequent use; occasionally, four or five grains of calomel may be taken with much advantage from its effect in stimulating the mucous or biliary excretories, when some of the laxatives above specified ought to be given next morning; the day on which any of these remedies are given ought to be one of peculiar moderation, and dilution with barley-water or rice gruel attended to. In bilious temperaments, where there is a predisposition to hepatic congestion, or where there is any apprehension of the typhus icterodes, it will frequently be found a measure of useful precaution to rub a drachm of mercurial ointment into the side, or to take four of the pil. hydrargyri daily for a week, so as to induce a slight mercurial action in the system.

With regard to the use of tonics, or antiseptics, the indications for employing them, and their utility, are much less than is generally supposed. The feeling of debility is often fallacious, and produced by the organs being overloaded, or a biliary absorption; and the effect of heat in accelerating putrefaction is not applicable to the living œconomy: on the contrary, by leading to greater personal cleanliness and circulation of air, those symptoms denominated putrescent are more rarely met with. The simply bitter medicines are of doubtful safety in every climate, and there is no doubt that an habitual use of them ought to be avoided; when given, it should be at intervals, tonics of the astringent kind requiring to be accompanied with the use of laxative medicines. The food ought, in quantity and quality, to suffice for the purposes of nutrition, and of supporting the healthful action of the system; and the times of meals ought probably to be regulated by former habits, although these are different from what are generally adopted by the natives of warm climates. For breakfast, bread and little butter with tea; bread and soft egg, or the yolk only; rice and fish. Our customs have rendered tea too prevailing an article of regimen. Fruit ought to be used at first sparingly, and in the forenoon. For dinner, soups or broths, provided there is no idiosyncrasy or dyspeptic affection to forbid their use; a moderate portion of well dressed food and vegetables. The principal caution to be observed is, of not exceeding in quantity, or taking in so much as to burthen the stomach. For drink, in general water only. Wine is the least exceptionable of stimulating drinks, but unnecessary and hurtful to the

young

young and plethoric; and when the valetudinary have recourse to it, it ought to be in quantity only sufficient to occasion action of the powers, without endangering a subsequent collapse. Malt liquors are peculiarly injurious to those who are predisposed to affections of the liver, and of the biliary and mucous secretions; and spirits, however diluted, seem to have a most injurious effect on the power and activity of the gastric secretion. Melted butter, pastry, &c. are peculiarly objectionable.

If the dinner is late, supper ought to be totally omitted. Sleep ought to be taken early, for seven or eight hours, on a hair mattress, and in an airy place, but not exposed to currents of air: and such ought to be peculiarly guarded against where land winds prevail, or there is an exposure to marsh effluvia. The person ought to rise with the dawn, and at that time, if his situation permits it, to take horse exercise. Cold bathing, when admissible, is an excellent preservative against the effects of heat; and where there are no habits giving rise to plethora and visceral congestion, it ought to be had recourse to daily. To avoid much exercise in, or exposure to the rays of the sun is an injunction of obvious propriety and use; but were due attention paid to other cicumstances, this might be obeyed with a latitude arising from the avocations and employments of every one. Where the frame requires it, a short sleep after dinner may be indulged in, taking care to loosen whatever may bind or obstruct the circulation. In the cool of the evening, horse exercise may be again had recourse to. The mind ought to be at ease; where that is burthened, the disposition to many tropical diseases is increased; hepatic affections are most liable to attack those who suffer from sorrow, anxiety, or disppointment.

[To be continued.]

Observations on the Chemical Nature of the Humours of the Eye. By RICHARD CHENEVIX, *Esq. F. R. S. and M. R. I. A.*

THE functions of the eye, so far as they are physical, have been found subject to the common laws of optics. It cannot be expected that chemistry should clear up such obscure points of physiology as all the operations of vision appear to be; but some acquaintance with the intimate

nature of the substances which produce the effects cannot fail to be a useful appendage to a knowledge of the mechanical structure of the organ.

The chemical history of the humours of the eye is not of much extent. The aqueous humour had been examined by Bertrandi; who said that its specific gravity was 975, and therefore less than that of distilled water. Fourcroy, in his *Système des Connoissances Chimiques,* tells us that it has a saltish taste; that it evaporates without leaving a residuum; but that it contains some animal matter, with some alkaline phosphate and muriate. These contradictions only prove that we have no accurate knowledge upon the subject.

The vitreous humour is not better known. Wintringham has given its specific gravity (taking water at 10000) as equal to 10024; but I am not acquainted with any experiments to investigate its chemical nature.

We are told by Chrouet, that the crystalline lens affords, by destructive distillation, fœtid oil, carbonate of ammonia, and water, leaving some carbon in the retort. But destructive distillation, although it has given us much knowledge as to animal matter in general, is too vague a method for investigating particular animal substances.

I shall now proceed to mention the experiments I have made upon all the humours. I shall first relate those which were made upon the eyes of sheep (they being the most easily procured), and shall afterwards speak of those of the human body, and other eyes. I think it right to observe, that all these eyes were as fresh as they could be obtained.

SHEEPS' EYES.

Aqueous Humour.

The aqueous humour is a clear transparent liquid, of the specific gravity of 10090,* at 60° of Fahrenheit. When fresh, it has very little smell or taste.

It causes very little change in the vegetable re-active colours; and this little would not, I believe, be produced immediately after death. I imagine it to be owing to a generation of ammonia, some traces of which I discovered.

When

* All these specific gravities are mean proportionals of several experiments. The eyes of the same species of animal do not differ much in the specific gravity of their humours.

When exposed to the air, at a moderate temperature, it evaporates slowly, and becomes slightly putrid.

When made to boil, a coagulum is formed, but so small as hardly to be perceptible. Evaporated to dryness a residuum remains, weighing not more than 8 per cent. of the original liquor.

Tannin causes a precipitate in the fresh aqueous humour both before and after it has been boiled, and consequently shows the presence of gelatine.

Nitrate of silver causes a precipitate, which is muriate of silver. No metallic salts except those of silver, alter the aqueous humour.

From these and other experiments it appears that the aqueous humour is composed of water, albumen, gelatine, and a muriate, the basis of which I found to be soda.

I have omitted speaking of the action of the acids, of the alkalis, of alcohol, and of other re-agents, upon this humour. It is such as may be expected in a solution of albumen, of gelatine, and of muriate of soda.

Crystalline Humour.

To follow the order of their situation, the next of the humours is the crystalline.

This differs very materially from the others.

Its specific gravity is 11000.

When fresh, it is neither acid nor alkaline. It putrifies very rapidly. It is nearly all soluble in cold water, but is partly coagulated by heat. Tannin gives a very abundant precipitate; but I could not perceive any traces of muriatic acid when I had obtained the crystalline quite free from the other humours. It is composed, therefore, of a smaller proportion of water than the others, but of a much larger proportion of albumen and gelatine.

Vitreous Humour.

I pressed the vitreous humour through a rag, in order to free it from its capsules; and in that state, by all the experiments I could make upon it, I could not perceive any difference between it and the aqueous humour, either in its specific gravity (which I found to be 10090, like that of the other,) or in its chemical nature.

M. Fourcroy mentions a phosphate as contained in these humours; but I could not perceive any precipitation by muriate or nitrate of lime; nor did the alkalis denote the presence of any earth, notwithstanding M. Fourcroy's assertion of that fact.

HUMAN EYE.

I could not procure a sufficient quantity of these, fresh enough to multiply my experiments upon them. However, by the assistance of Mr. Carpue, surgeon to his majesty's forces, I fully convinced myself that the humours of the human eye, chemically considered, did not contain any thing different from the respective humours of the eyes I had examined. The aqueous and vitreous humours contained water, albumen, gelatine, and muriate of soda; and the crystalline humour contained only water, albumen, and gelatine. The specific gravity of the aqueous and vitreous humours I found to be 10053, while that of the crystalline was 10790.

EYES OF OXEN.

I found the eyes of oxen to contain the same substances as the respective humours of other eyes. The specific gravity of the aqueous and vitreous humours is 10088, and that of the crystalline 10765.

What is particularly worthy of notice is, that the difference which appears to exist between the specific gravity of the aqueous or vitreous humour and that of the crystalline, is much greater in the human eye than in that of sheep, and less in the eye of the ox. Hence it would appear that the difference between the density of the aqueous and vitreous humour and that of the crystalline, is in the inverse ratio of the diameter of the eye, taken from the cornea to the optic nerve. Should further experiments show this to be a universal law in nature, it will not be possible to deny that it is in some degree designed for the purpose of promoting distinct vision.

In taking the specific gravity of the aqueous and vitreous humours, no particular precaution is necessary, except that they ought to be as fresh as possible. But the crystalline humour is not of an uniform density throughout; it is therefore essential that attention be given to preserve that humour entire for this operation. I found the weight of a very fresh crystalline of an ox to be 30 grains; and its specific gravity was, as I before stated, 10765. I then pared away all the external part, in every direction, till there remained but 6 grains of the centre; and the specific gravity of these 6 grains I found to be 11940. From this it would seem that the density increases gradually from the circumference to the centre.

It is not surprising that the crystalline humour should be subject to disorders, it being wholly composed of animal

matter

matter of the most perishable kind. Fourcroy says that it is sometimes found osseous in advanced age. Albumen is coagulated by many methods; and, if we suppose that the same changes can take place in the living eye as in the dead animal matter of the chemists, it will be easy to account for the formation of the cataract; a disorder which cannot be cured but by the removal of the opake lens. If a sufficient number of observations were made respecting the frequency of the cataract in gouty habits, some important conclusions might be drawn as to the influence of phosphoric acid in causing the disorder, by the common effect of acids in coagulating albumen.

Analysis of Ambergris. *By* Bouillon Lagrange.

It is now almost generally admitted that ambergris is found in the stomach of the cachelot, called by naturalists *Physeter macrocephalus*, and that it seems to be the product of its digestion.

Dr. Swediaur has proved in his Researches on the Nature and Origin of Ambergris, that the beaks of the sepia, with which large pieces of ambergris, both those found on the coasts or at the surface of the sea, and those taken from the bellies of these whales, are mixed, belong to that species to which Linnæus has given the name of *Sepia octopoda*. The existence of these beaks and of other foreign bodies in ambergris is a convincing proof that it has been once in a state of softness or liquidity. M. Swediaur says, that the kind of whale which contains ambergris in its belly is that species from which spermaceti is extracted, which seems to be the *Physeter macrocephalus* of Linnæus, and which feeds chiefly on the large species of sepia. It is in the intestinal canal of this whale that the ambergris is found; to the animal it is a source of disease; this matter, when it issues from the bag which contains it, gradually acquires that solidity which it is observed to possess.

Ambergris is found in the Indian seas, near the Moluccas, the Maldives, and Madagascar, and on the coasts of China and Japan, and from Iola to the Manillas. It is often picked up on the Coasts of Maragnon, or of Brasil, but more commonly on those of Africa towards Cape Blanc, the Gulf of Arguin, the Bay of Portendia, and in some

 other

other islands which extend from that of Mosambique to the Red Sea.

According to the accounts of several travellers, the inhabitants of the isles of Samballat search for it in a very singular manner. After storms they proceed along the shore, and if there be ambergris on it they perceive it by the smell. There are certain birds and other animals on these shores which are fond of ambergris; and as they discover it at a distance by the smell, they go in search of it in order to eat it.

There can be no doubt that ambergris is an animal production. Several substances approach very near to it in smell, such as the excrements of some of the mammalia, and particularly those of oxen and pigs. I found that cows' dung dried in the sun has an odour very analogous to ambergris, and even to musk; and hence the name of *indigenous musk* given in some countries to this substance, prepared in this manner.

Ambergris *(ambrea grisea)* is a light substance which floats on the water, solid, opake, of an ash colour, veined with white and yellowish-brown, slightly odoriferous, but the odour of which develops itself as it grows old, or when it is mixed with musk or other aromatous substances, as it is prepared for perfumes or smelling waters.

Good ambergris in its natural state may be known if when scraped with the blade of a knife it adheres to the knife like wax, if it retains the impression of the nails and that of the teeth, and if, when pricked with a hot needle, it emits a fat odoriferous juice. Though solid, and in general brittle, it is not sufficiently hard to bear polishing, but rubbed with the nail it becomes smooth like hard soap.

Geoffroy, Neumann, Grim, and Brow, have classed ambergris among the bitumens. The analysis made of it by chemists is not sufficient to determine the nature of this substance. Ambergris fuses in the fire, says Geoffroy, into a resin of a yellow or gold colour; when applied to a flame it kindles and burns; spirit of wine does not dissolve it entirely, there remains a black matter like pitch on which it has no action. When dissolved it leaves some time after a white nebulous sediment, which gradually coagulates and becomes thicker and thicker; this *coagulum* being dried changes into a brilliant foliated earth, and which is not different from spermaceti.

In distillation, according to the same chemist, ambergris gives first an insipid phlegm, then an acid liquor or spirit, and a highly odorous yellow oil, with some portion of acid

and

and volatile dirty salt; in the last place there remains at the bottom of the retort a brilliant, black, and bituminous matter. It is here seen that this analysis, which does not differ from that given by all chemists, deserves to be re-examined, in order to give us correct ideas respecting the nature of this singular substance.

I think it my duty to acquaint those who may be desirous of repeating these experiments, to be very careful in their choice of the ambergris. Several varieties are common in commerce, the price of which establishes different species. There is no doubt that this substance is fabricated as *castorium* is made in some countries of Germany. Bayen assured me that he saw it made at Franckfort. This father of chemistry found that his memory did not deceive him; and, what is rare among travellers, he told the truth.

I have examined several kinds of ambergris used in commerce. Some of them vary in specific gravity, have a colour more or less dark, with very little odour, and are flexible; others are of an ash-grey colour, pretty hard; in the last place, others are almost stony, are scarcely soluble in alcohol, and have no odour.

The ambergris which I analysed was not purchased. I compared it with that in the cabinet of the Museum of Natural History, and found no difference either in the coour or odour.

Physical Properties.

It is of an ash-grey colour, interspersed in the inside with some yellow striæ; has a sweet mild odour, and grows soft between the fingers. When reduced to a fine powder it acquires a darker colour; pounded in a glass mortar it becomes agglutinated and adheres to the pestle.

Its taste is dull and almost insipid, and when put between the teeth it exhibits the same phenomena as wax.

Its specific gravity is from 844 to 849: that of water being 1000.

According to Brisson the specific gravity of ambergris is 9263. The weight of the cubic inch 4 gros 58 grains; that of the cubic foot 64 pounds 13 ounces 3 gros 47 grains.

The specific gravity of blackish ambergris is 7803. The weight of the cubic inch 4 gross 3 grains; that of the cubic foot 54 pounds 9 ounces 7 gross 35 grains.

Chemical Properties.

Exp. 1. Ambergris, when placed on burning charcoal, burns, and becomes entirely volatilized; it then leaves an agreeable odour.

If

If this combustion is effected more slowly in a platina crucible it fuses, emitting the same odour; that of a fat body is also distinguished.

Nothing remains in the crucible but a black greasy spot.

Fifty degrees of heat (Reaumur's thermometer) are sufficient to fuse it. A brown brilliant liquid is thus obtained.

At eighty degrees it is volatilized under the form of white vapours.

Exp. 2. The odour developed during its volatilization, having made me suspect the presence of an acid analogous to that of balsams, an experiment was made to ascertain it. A bit of ambergris was placed in a porcelain capsule covered by a bell, in which was suspended a paper tinged with turnsole. The apparatus being placed on a sand bath, the temperature was raised to the degree necessary to volatilize the ambergris: the paper speedily assumed a red colour. Nothing was now necessary but to discover the nature of this acid; and with this view Scheele's process for extracting acid of benjamin was employed.

The product was examined, and left no doubt in regrad to its analogy.

Exp. 3. The analysis with the retort added nothing to the knowledge already acquired in regard to the nature of ambergris.

A gentle temperature makes it fuse; in a more elevated one it is decomposed, and a whitish acid liquor and a light oil soluble in part in alcohol, which gives it a yellow colour, pass over into the receiver. There remains in the retort a light and very voluminous charcoal.

Exp. 4. Ambergris floats on water, and does not suffer itself to be penetrated by that liquid cold; it acquires neither odour nor savour. Boiling water produces no alteration on it. At that degree the ambergris dissolves and appears under the form of a brownish oily liquid; a small quantity of a black matter insoluble in alcohol is separated. The filtered liquor had neither odour nor colour, and only a slight bitter savour.

It is only in the ratio of the temperature, then, that ambergris dissolves, since in proportion as it is lowered it is found to have the same properties.

Exp. 5. Acids in general have very little action on ambergris. It has not yet been possible by the aid of these agents to discover the constituent parts of this compound.

Weakened sulphuric acid makes it experience no change. If concentrated, it lays bare little of the oxyd of carbon.

The

The same phænomena are exhibited by the muriatic and oxygenated muriatic acids.

Nitric acid raised to 18 degrees, and distilled from off that substance, in a pneumonic apparatus, gives for result nitrous gas, carbonic acid, and azotic gas.

The latter arises, no doubt, from the decomposition of some animal matters accidentally mixed with the ambergris, as may be observed in the examination of some fragments of it.

There is found in the retort, after the elastic fluids are extracted, a thick liquid inclining to yellow: when brought to a soft consistence the matter swells up a little, and when evaporated to dryness in a porcelain capsule there remained a dry brittle matter of a golden-yellow colour, brilliant and transparent, which exhibited characters analagous to resins.

Exp. 6. Alkalies unite with ambergris, and form with it soluble soaps.

Thirty grains of ambergris with ten grains of pure potash were put into a platina crucible and exposed to a gentle heat: the mixture fused without manifesting the presence of ammonia: by cooling, a brownish homogeneous mass was obtained.

One ounce of distilled water being poured over, it dissolved a part. This liquor was exceedingly alkaline.

The other portion not soluble remained under a soft tenacious form, which when warm adhered to the fingers.

A larger quantity of water being added, the whole was dissolved.

Caustic potash triturated some time in a mortar with ambergris does not facilitate its solution by water.

Ammonia cold has no action on it, but with the help of heat dissolves it. The mixture gradually becomes brown, and by evaporation gives a glutinous saponaceous matter, similar in every thing to that obtained by potash.

Exp. 7. Fixed oils, such as that of colsa, olives, &c. dissolve it with the help of heat in a very little time: the solution is yellow and transparent, and by evaporation becomes brown.

Exp. 8. Volatile oils also dissolve ambergris. Those of turpentine, savin, and hysop, do the same. With the help of heat the solution takes place speedily.

Evaporation gives a thick red magma which cannot be entirely dried, which burns on coals, emitting a thick smoke and an odour approaching that of ambergris. Alcohol dissolved this substance, and acquired a golden

 yellow

yellow colour: it was precipitated from it by the help of heat.

A complete solution cannot be obtained in volatile oils which are too old, even with the assistance of long continued heat.

Exp. 9. Solution by ether is very speedy, even without heat.

Exp. 10. The solution of ambergris by alcohol is that alone which can conduct to any certain results. The constituent parts may be separated in such a manner, that by uniting them a compound will be obtained, the characters of which approach near to those of the compound.

One gros of ambergris being reduced to fine powder and put into a phial, two ounces of rectified alcohol were poured over it. Twenty-four hours' maceration were sufficient to give to the alcohol a dark yellow colour. When the liquor had been filtered a new quantity of alcohol was added to the undissolved part, and the solution was facilitated by elevating the temperature. When the whole was dissolved, except a small quantity of black matter, the liquor was filtered still warm. It passed through clear; but by cooling there was separated a light pale yellow substance, a part of which remained attached to the sides of the vessel.

The first alcoholic tincture made cold, and that arising from the matter precipitated, were mixed, and evaporated to the consistence of extract: it was of a reddish yellow colour, adhered to the fingers, had an agreeable odour and a sweet taste. The evaporation was continued to dryness: in this state the matter with a brilliant and transparent aspect became soft between the fingers, and burnt in the same manner as resins.

The experiment was repeated, to establish in a more positive manner the characters of these two substances.

For this purpose the ambergris was left, as before, to macerate in alcohol for twenty-four hours: it was then filtered, and a new quantity of alcohol was added to the residuum: the maceration was the same. This second liquor was less coloured than the former. A third dose of alcohol was poured over the undissolved part, but it was scarcely coloured. This little action of the alcohol on the residuum gave reason to believe that it was no longer soluble in that menstruum: but I soon was convinced of the contrary. I heated the mixture, and the whole matter was dissolved in a moment. Nothing remained but about four grains of a black powder, which was oxyd of carbon. The liquor was filtered warm, and by cooling there was precipitated

pitated a whitish yellow glutinous matter, which was separated from the liquor.

This experiment proves the possibility of separating by the help of alcohol three very distinct products: the first soluble cold, the second soluble warm, and the third insoluble, which is separated in the form of dust.

To establish the characters of the two first substances, the alcoholic tincture made cold was evaporated to dryness. There remained in the capsule 22 grains of a brown dry matter, brilliant in the fracture, unalterable in the air, and which became soft in a gentle heat: fifteen degrees were sufficient to give it a tenacious and glutinous consistence: when placed on coals it was entirely volatilized. If this experiment be made in a silver spoon, the volatilization is effected with the same rapidity: it emits an aromatic odour, and leaves no carbonaceous residuum.

As I suspected that this substance might have some analogy with resin extracted from the *propolis* by C. Vauquelin, I made some comparative experiments with it. The following are the points in which they differ:

1st. It fuses much more slowly.

2d. It emits a thick odorous smoke, which in smell approaches near to that of honey.

3d. It swells up, and leaves a very voluminous charcoal.

In the last place, this first substance extracted from ambergris, which may be considered as a real resin, is soluble in alcohol, and may be precipitated by water. This tincture reddens turnsole paper; which still proves that the alcohol dissolves at the same time the benzoic acid previously found, either by burning the amber under a bell, or in treating it with lime.

Nothing now remains but to examine the product obtained by alcohol warm, after the resin has been extracted by maceration.

I have already said that there is separated from the alcohol by cooling, a substance which deposits itself in part, and which adheres to the sides of the vessel.

When separated from the liquor and properly dried, it remains light and somewhat voluminous; it breaks and moulders under the pressure of the finger, but soon after it extends itself and becomes soft by the heat: it has a lamellated texture if left to cool slowly.

It retains between its moleculæ a little water and alcohol, which are separated by keeping this substance some time in a state of fusion. When re-fused it is much less whi e than before, and no longer possesses the granulated texture it exhibited,

exhibited. In a word, I have found in it all the properties of *adipo-cira*; a substance which C. Fourcroy found in the fat matter of dead bodies, and of which he described the characters in a memoir printed in the eighth volume of the *Annales de Chimie.*

Recapitulation.

It appears, then, that we may conclude from these experiments:

1st. That ambergris is a compound substance which burns and is entirely volatilized.

2d. That when distilled alone there is obtained from it a liquor slightly acid, and an oil partly soluble in alcohol and of an empyreumatic odour.

3d. That by sublimation, or the process of Scheele, benzoic acid is extracted from it.

4th. That water has no action on the substance.

5th. That by help of the nitric acid a matter analogous to resins mixed with *adipo-cira* is separated from it.

6th. That concentrated sulphuric, muriatic, and oxygenated muriatic acid char it without dissolving it.

7th. That with alkalies it forms a saponaceous compound.

8th. That fixed and volatile oils, ether, and alcohol, are the true solvents of ambergris.

9th. That alcohol affords the means of separating its constituent parts in the following proportions:

	Grammes.
Adipo-cira - - - - - - -	2.016
Resin - - - - - - - - -	1.167
Benzoic acid - - - - - -	0.425
Carbonaceous matter - -	0.212
	3.820

CHEMICAL ANALYSIS *of the* URINE *in a* CASE OF DIABETES MELLITUS, *by Professor* KLAPROTH, *of Berlin.*

I Had lately an opportunity of examining the urine of a patient, labouring under diabetes mellitus, which was transmitted to me by Dr. Michaelis, of Harburg. The colour of this liquor was pale yellow; and a small portion of a reddish sediment, had fallen to the bottom of the glass in which it

it was contained. The smell was neither putrid nor ammoniacal, but the taste, as well its changing the blue vegetable colour to a red, evidently betrayed the traces of its containing an acid, which I thought had been generated by the saccharine matter passing into acetous acid; an alteration which it was likely to have undergone, as it had been kept above six months in a warm place. Besides this acid, I discovered in the liquor evident traces of phosphoric acid, for on being mixed with acetite of lead it precipitated a white substance, part of which could be reduced to lead, while another part was melted to a white porcelain globule, which on cooling received a polyedrical form, being thus characterised as phosphate of lead. The reddish sediment was accurately examined for the purpose of finding in it the acidum urolithicum, of which, however, not the least trace could be perceived, it being found chiefly to consist of albuminous matter.

With a small quantity of the above urine, &c. Dr. M. had sent me a portion of the residuum of the same diabetical urine, after its having been evaporated to the consistency of honey. It had the appearance, the blackish colour, and consistency of a thin extract, and contained a sediment of small brown and spherical crystals; it had a sourish taste; no ammonia could be disengaged by mixing it with caustic kali, and it remained without any smell. On adding to it carbonated kali, a considerable effervescence took place. Being infused with four times its measure of alcohol, and digested with a very moderate heat, the greatest part of it was dissolved except a gummous residuum and the above mentioned salt. After this solution had been separated from the residuum through the filtrum, and evaporated to the consistency of an extract, it was mixed with three times its measure of moderately strong nitric acid, whereby a strong reaction ensued in the heat, a considerable quantity of nitrous gas being at the same time disengaged. The residuum appeared of the colour and consistency of pure honey, which being again treated with the same quantity of nitric acid, was for the most part changed into oxalic acid, shooting into crystals on cooling. The saline and gummous residuum, which remained insoluble in alcohol, was dissolved in hot water, which being cooled, deposited the salt in form of light brown crystals, which seemed to be flat tetraedical prisms. As I had discovered in the urine the presence of phosphoric acid, I concluded those crystals might also contain it, in which however I was disappointed. They easily melted on

a coal

a coal before the tubus fusorius, but formed no pearl, leaving behind a fixed alkaline salt, which being strongly heated in a platina crucible, dissolved in water, and supersaturated with a solution of tartaric acid, yielded pure tartar. They made a strong precipitation in lime water, but the sediment being heated proved to be only caustic lime, which was soluble in water. In a solution of acetite of lead they precipitated a white substance, which was entirely reduced to lead.

From these and similar experiments these crystals appeared to consist of nothing but oxalat of kali. Alcohol precipitated the gummous particles from the watery solution in form of a light brown glutinous substance. The inspissated urine resembled more a vegetable extract than an animal substance; but particularly, the specific constituent of the urine, the ureum, was not contained in it. The results of these experiments agree with those which Dr. Rollo, Mr. Cruikshank, and lately Messrs. Nicolas and Gneudeville have communicated, except that these gentlemen having examined fresh urine, found the chief constituent of it to consist of mucosaccharine matter, which in the urine I examined had been changed into an acid extractive matter. It is remarkable, that no phosphoric acid could be traced in the inspissated urine, which I had found in the raw urine. The above extract of urine, mixed with acetite of lead, yielded a great quantity of an ash coloured sediment, which was easily reduced to metallic lead.

Observations on several Pharmaceutical Preparations, by CIT. STEINACHER, *Druggist, at Paris.*

Unguentum Nutritum.

CITIZEN Dubree, an eminent druggist at Rouen, has lately presented a formula for unguentum nutritum, to the Pharmaceutical Society. As apothecaries, zealous for the perfection of their art, have proposed improvements in the preparation of this ointment at different periods, I have thought that an object, to which the attention of practitioners has been called from time to time, notwithstanding it is apparently obsolete, deserved a fresh examination.

When oil, vinegar, and litharge are to be mixed together into a homogeneous mass, a little litharge must be dissolved in acetous acid, and a sufficient quantity of carbonic

bonic acid must be introduced. 1st. to convert the greater part of the litharge into white carbonate, which remains diffused through the oil; 2dly, to thicken the oleous mixture, an effect analogous to the thickening of soups by the carbonic acid, with which we were made acquainted by Pelletier. If a sufficient quantity of vinegar to form a saturated saline compound be employed, the mixture will never combine perfectly. This theory, founded on experiment, brings us back to the prescribed formula, as the best that can be adopted, that which produces an ointment, the most bulky, the lightest, and the most cooling to the part affected. It succeeds very well, when the operator is endued with patience, and works in a cold place. It may be abridged however, if, according to the excellent advice of Baumé, we employ coagulated oil of olives, by which the surfaces of contact are increased, and the introduction of the air is facilitated. One important fact with respect to keeping the preparation is, that at the temperature of 15° or 16°, at which most kinds of fermentation take place, a portion of the carbonic acid is extricated, and leaves exposed an oxyd at $\frac{1}{80}$, which becomes again yellow. It requires a temperature of 10° to preserve its white colour unaltered.

Citizen Dubree, and Citizen Granet before him, proposed to expedite the preparation by adding hog's lard; but I find, that this addition diminishes its bulk and levity. In Germany, different compositions are made under the name of *nutritum*, as with vinegar of litharge and half its weight of oil of roses, which produce an ointment as white as wax, and of the consistence of a liniment; with vinegar of litharge two parts, and olive oil three parts, which yield a whitish ointment of a moderate consistence; with two parts of olive oil, one part of wax, and two parts of vinegar of litharge, which furnish an ointment of a firm consistence, and a waxy whiteness. But all these compositions are simple mixtures, feebly united, by no means resembling the nutritum of the French shops, and not requiring for their formation a mutual reaction between the different particles of the ingredients.

Crystallization of Phosphoric Acid.

It is known, that the affinity of phosphoric acid for water overpowers its force of crystallization; in fact, this salifiant substance appears commonly in the form of a thick oil. I have lately observed, however, that time, the

grand producer of regular crystallization, effects a symmetrical combination between its particles.

I had prepared half a kilogramme of phosphoric acid, according to the method of Lavoisier, with phosphorus and nitric acid, both of them extremely pure. This acid, freed from nitrous gas, reduced to the consistence of a thick syrup, and introduced into a phial with a glass stopper, had been used at different times in the course of a year, without exhibiting any peculiar appearance. The year following I let it remain perfectly at rest in the phial, which was half full, and closely stopped. After this period I found the surface of the fluid covered with a saline crust, from which shot downward prismatic crystals in shining laminæ, an inch long, and a line broad, diverging from a centre. I will not describe their geometrical structure, for they are extremely thin, and embedded in a fluid too viscous for me to take them out without breaking. Besides, they are still increasing; laminæ rise from the bottom of the vessel, which touch the surface of the glass, and seem preparing to intermix with the ramifications that shoot down from the upper stratum. The sides of the vessel are the seat of this beautiful crystallization. The centre remains in part concrete, or fluid, whence it follows, that if a very regular dissipation of the particles of the liquid acid of phosphorus be occasioned by repose, the sides of the vessel contribute to it in great measure by affording fixed points, to which the positions of affinity most favourable to crystallization direct themselves.

Purity of Phosphorus.

Proust has informed the public, that, in the distillation of phosphorus, a combination of this substance with the charcoal constantly took place. This important discovery extends much farther than its celebrated author has shewn.

Take the most brilliant and most transparent phosphorus, which has not only been strained through chamois leather, according to Woulfe's method, but has also been dissolved several times in nitro-muriatic acid, as done by Count Mussin-Puschkin, or which has been treated with oxygenated muriatic acid, after the mode of Juch of Wurkburg; let it be heated gently in a long slender tube; red parts will separate from it Put a few grains of this phosphorus, which is conceived to be so pure, on a silver spoon, and set fire to it; a red trace will remain. If the spoon be heated

in

in the dark, the red trace will be seen still to burn, and a coal will remain impregnated with phosphoric acid.

Mr. Juch has asserted, that his phosphorus is extremely pure, because it no longer becomes black when heated with caustic alkali; but it is in fact because the phosphure of carbon is unalterable by caustic potash. According to the indisputable authority of Proust, this re-agent is incapable of proving the purity of phosphorus. I confess, that heated oxygenated muriatic acid destroys part of the carbon of phosphorus, because the combustible power of its oxygen increases in the ratio of its elasticity; but it produces this effect only by burning a proportionate quantity of phosphorus. On the contrary, when it is cold, and its oxygen is reduced to its natural degree of elasticity, it is far from destroying the carbon; it separates it in the state of black oxyd, and converts the phosphorus into white oxyd, while at the same time, itself returns to the state of simple muriatic acid. I have observed this fact on a stick of transparent phosphorus, which I kept two years in a bottle filled with pure oxygenated muriatic acid, saturated at the temperature of 10°. It is impossible, therefore, to free the phosphorus entirely of charcoal. They oxyde, or are acidified nearly in proportional quantities; and though the proportion of charcoal may be diminished, the phosphorus always retains some by its power as a whole. In fine, I am obliged to contradict the assertion of an illustrious master, Citizen Fourcroy, " that we are unacquainted with any direct combination between carbon and phosphorus, though it probably exists," and to consider that product on which chemists have hitherto bestowed the name of pure phosphorus, as a kind of gangue, from which the radical phosphorus is disengaged to enter into a number of combinations, without our being capable of obtaining it in its primitive form.

White Oxyd of Phosphorus.

When phosphorus is heated in a very long and very slender glass tube, in a sand-heat of 100° of the decimal thermometer, it is covered with a mild light, and exhales a white vapour, which condenses in the upper part of the tube, while, at the same time, part of the phosphorus, with excess of carbon, separates with its red colour. This white vapour, which has acquired for its formation a slight combustion, is a white oxyd of phosphorus at a minimum. The following are some of its properties. It is flocculent, possessed of cohesion, and occupies four times the space of the phosphorus employed in the experiment. When it

is dry, it does not redden litmus paper. It contains caloric and inflames on the contact of combustible substances. It powerfully attracts the moisture of the air, and is rapidly converted into phosphorus acid. It differs greatly from the white oxyd of phosphorus made by the long action of water, or cold oxygenated muriatic acid. This appears friable and pulverulent. It has lost almost all its latent heat. It is very little inflamable, and does not attract the moisture of the air. It is acidifiable only by the intimate action of an oxygen that contains caloric highly condensed, as that of the nitric acid. In a word, it is phosphorus at a maximum of oxydation.

Regular Crystallization of Essential Oil of Roses.

Citizen Steinacher has lately observed this with attention. He mixed eight kilogrammes of the magna of damask roses (*roses pâles*) with some parts of water, according to the process of Cit. Demachy; and after a day's maceration he drew off by distillation sixteen kilogrammes of water. This was immediately poured into a large glass jar, which was covered with a cloth, and left at rest. In twenty-four hours he found the surface of the water covered with an irridescent pellicle, interspersed with hexaedrons, very much resembling the crystals of snow, which the illustrious Cit. Mongé has described. He informs us, that a slight shake is sufficient to tear the crystalline gauze, and reduce it to that irregular form of whitish scales or laminæ, which the oil of roses commonly assumes.

Account of Diseases in an Eastern District of London, from December 20, 1803, to January 20, 1804.

ACUTE DISEASES.	
Peripneumonia Notha	4
Dysenteria	2
Variolæ	2
Rheumatismus Acutus	3
CHRONIC DISEASES.	
Tussis	14
Tussis cum Dyspnœa	12
Catarrhus	4
Phthisis Pulmonalis	3
Hydrothorax	2
Anasarca	4
Ascites	2
Icterus	1
Amenorrhœa	14
Leucorrhœa	11
Menorrhagia	6
Hysteria	3
Epilepsia	1
Cephalalgia	9
Vertigo	4
Rheumatismus Chronicus	17
PUERPERAL DISEASES.	
Menorrhagia Lochialis	2
Dolores post Partum	7
Mastodynia	5
Ephemera	10

INFANTILE

INFANTILE DISEASES.		Vermes - - - - - -	5
Convulsio - - - - - -	3	Herpes - - - - - - -	7
Ophthalmia - - - -	2	Dentitio - - - - - -	4

Since the last Report nothing has occurred particularly worthy of communication.

To the above list we may subjoin a general remark on the state of disease during the last year. In the earlier months of it, scarlatina made its appearance; it assumed however a mild form, and in very few instances proved fatal. In the spring, the influenza prevailed in so general a manner, and extended itself over so wide a circle as to occupy the principal attention of practitioners, not only in the metropolis, but in every part of the kingdom, and indeed in various foreign parts. So particular have been the reports communicated in this Journal, as well as in many distinct publications, that it is quite unnecessary to enter into detail of its symptoms or cure. After this disease had disappeared, an unusual degree of health was enjoyed for some months; the number of complaints was small, and their symptoms were uncommonly mild. The autumn also passed over without any remarkable interruption to the health of the public: the instances of cholera and dysentery, which in general are frequent at this season of the year, were very few. Since the winter commenced the temperature of the air has for the most part been so mild, that coughs, catarrhs, and the various pneumonic diseases that usually prevail at this season have been remarkably few.

CRITICAL ANALYSIS
OF THE
RECENT PUBLICATIONS
ON THE
DIFFERENT BRANCHES OF PHYSIC, SURGERY, AND MEDICAL PHILOSOPHY.

Medical Ethics; or a Code of Institutes and Precepts, adapted to the Professional Conduct of Physicians and Surgeons; to which is added an Appendix, containing a Discourse on Hospital Duties; also Notes and Illustrations. By THOMAS PERCIVAL, M.D. Manchester, 1803.

MUCH of this interesting work has already appeared before the Public in one form or other; but we have great pleasure in seeing the whole collected together, as forming a code of most excellent regulations

regulations for professional men, every clause of which exhibits that liberal and gentleman-like spirit which is always expected from, and so often adorns, the well educated British Physician.

The first chapter, the author observes in his preface, was composed in 1792, at the request of the physicians and surgeons of the Manchester Infirmary, and is the substance of the laws by which the practice of that institution (as far as relates to the mutual conduct of the medical attendants) has since been regulated.

The second chapter includes the more extended subject of professional conduct in private or general practice. Earnestly recommending a perusal of the whole, we shall select a few parts which are more peculiarly professional, or such as are intended to regulate conduct in cases to which the common laws of morality or good manners do not so immediately apply; for, after all, it is only these that are calculated to excite much interest from the medical reader. First, as to interference:

"*Officious Interference*, in a case under the charge of another, should be carefully avoided. No meddling inquiries should be made concerning the patient; no unnecessary hints given, relative to the nature or treatment of his disorder; nor any selfish conduct pursued, that may directly or indirectly tend to diminish the trust reposed in the physician or surgeon employed. Yet though the character of a professional busy-body, whether from thoughtlessness or craft, is highly reprehensible, there are occasions which not only justify but require a spirited interposition. When artful ignorance grossly imposes on credulity; when neglect puts to hazard an important life; or rashness threatens it with still more imminent danger; a medical neighbour, friend, or relative, apprized of such facts, will justly regard his interference as a duty. But he ought to be careful that the information, on which he acts, is well founded; that his motives are pure and honourable; and that his judgement of the measures pursued is built on experience and practical knowledge, not on speculative or theoretical differences of opinion. The particular circumstances of the case will suggest the most proper mode of conduct. In general, however, a personal and confidential application to the gentleman of the faculty concerned, should be the first step taken, and afterwards, if necessary, the transaction may be communicated to the patient or to his family."

Professional Assistance. — "Whenever a physician or surgeon *officiates* for another, who is sick or absent, during any considerable length of time, he should receive the fees accruing from such additional practice. But if this fraternal act be of short duration, it should be gratuitously performed; with an observance always of the utmost delicacy towards the interest and character of the professional gentleman, previously connected with the family."

Fees.—"Some general rule should be adopted by the faculty, in every town, relative to the *pecuniary acknowledgements* of their patients; and it should be deemed a point of honour to adhere to this

rule

rule with as much steadiness, as varying circumstances will admit. For it is obvious that an average fee, as suited to the general rank of patients, must be an inadequate gratuity from the rich, who often require attendance not absolutely necessary; and yet too large to be expected from that class of citizens, who would feel a reluctance in calling for assistance, without making some decent and satisfactory retribution."

Quack Medicines.—"The use of these should be discouraged by the faculty, as disgraceful to the profession, injurious to health, and often destructive even of life. Patients, however, under lingering disorders, are sometimes obstinately bent on having recourse to such as they see advertised, or hear recommended, with a boldness and confidence, which no intelligent physician dares to adopt with respect to the means that he prescribes. In these cases, some indulgence seems to be required to a credulity that is insurmountable. And the patient should neither incur the displeasure of the physician, nor be entirely deserted by him. He may be apprized of the fallacy of his expectations, whilst assured, at the same time, that diligent attention should be paid to the process of the experiment he is so unadvisedly making on himself, and the consequent mischiefs, if any, obviated as timely as possible. Certain active preparations, the nature, composition, and effects of which are well known, ought not to be proscribed as quack medicines."

The last is a subject of some difficulty, as the author himself appears to feel by the concluding sentence, which evades the general question, but does not decide it.

Gratuitous Advice.—"A wealthy physician should not give advice *gratis* to the affluent; because it is an injury to his professional brethren. The office of physician can never be supported but as a lucrative one; and it is defrauding, in some degree, the common funds for its support, when fees are dispensed with, which might justly be claimed." This is equally just and prudent.

Was it the author's knowledge of mankind that suggested to him the following clause?

"The commencement of that period of senescence, when it becomes incumbent on a physician to decline the offices of his profession, it is not easy to ascertain; and the decision on so nice a point must be left to the moral discretion of the individual. For, one grown old in the useful and honourable exercise of the healing art, may continue to enjoy, and justly to enjoy, the unabated confidence of the public. And whilst exempt, in a considerable degree, from the privations and infirmities of age, he is under indispensable obligations to apply his knowledge and experience in the most efficient way, to the benefit of mankind. For the possession of powers is a clear indication of the will of our Creator, concerning their practical direction. But in the ordinary course of nature, the bodily and mental vigour must be expected to decay progressively, though perhaps slowly, after the meridian of life is past. As age advances, therefore, a physician should, from time to time,

N 4 scrutinize

scrutinize impartially the state of his faculties; that he may determine, *bona fide*, the precise degree in which he is qualified to execute the active and multifarious offices of his profession. And whenever he becomes conscious that his memory presents to him, with faintness, those analogies, on which medical reasoning and the treatment of diseases are founded; that diffidence of the measures to be pursued perplexes his judgement; that from a deficiency in the acuteness of his senses, he finds himself less able to distinguish signs, or to prognosticate events; he should at once resolve, though others perceive not the changes which have taken place, to sacrifice every consideration of fame or fortune, and to retire from the engagements of business."

The conduct of physicians to apothecaries forms the subject of the third chapter, at the end of which he strongly recommends the establishment of benefit societies similar to those already established in Norfolk and London, for the most numerous class of professional men.

The fourth chapter relates to those cases in which medical men, as such, are concerned with the laws of their country, and with this terminates the juridical part of this collection.

Two additions are made, in the form of appendix; the first, a Discourse on Hospital Duties by the Rev. Thomas Bassnett Percival; and the second, consisting of Notes and Illustrations to the former part of the work, by the author. The most prominent of these, and one in which the author appears to speak with his whole heart, is a defence of the medical profession from the old and often repeated charge of scepticism in matters of religion.

Here we shall conclude our remarks on this candid and interesting treatise, abounding in humanity and good sense; but as a code for practical use, much too limited and general to apply to almost the only cases in which specific advice might be acceptable.

Essays on the Diseases of Children, Essay II. on the Bowel Complaints more intimately connected with the Biliary Secretion, and particularly of the Atrophia Ablactatorum, or Weaning Brash. By John Cheyne, M. D.

The first Essay of this author, on Croup, we noticed in a former number of our Journal; in the present treatise Dr. C. describes some very important diseases connected with the biliary system, to which infants are liable; and which annually carry off a very large number of the young of the human species.

The first which the author mentions is Jaundice, which attacks infants a few days after birth, attended with languor, flatulence, and bilious urine, and appears at once with such decided symptoms as to indicate a probable organic derangement in the structure of the liver. It is always dangerous, and generally fatal. The author has not found any considerable light thrown on the immediate cause of the disease by dissection, and therefore supposes it with some

some probability to depend on some preternatural thickening of the pori biliari. A slighter kind of jaundice is however described by several authors, which disappears in a few days.

A plate is given, exhibiting a dissection of a case of the former species of jaundice, in which the principal morbid appearance was a great enlargement of the liver to nearly twice its natural size.

But the most important disease considered in this Essay is what is commonly (in Scotland) called the *Weaning Brash*, and to which Dr. C. gives the appropriate term of *Atrophia Ablactatorum*. It is a morbid state of all the digestive functions of children, apparently produced by a want of the natural food, the mother's milk, and is well known to every practitioner, particularly in large towns, and to every nurse. How many hundreds of instances annually occur in this metropolis, of infants, apparently stout and healthy at birth, who continue to thrive perfectly well for several weeks, till the mother, confiding in the signs of robust health in her plump ruddy infant, is induced to sacrifice to the child of an opulent parent the natural food destined for her own offspring, which is then sent out to some hired nurse in some of the villages in the outskirts of the town, where good air, wholesome food, careful tending, and motherly attention are always promised, and sometimes faithfully bestowed. The event of this change is seen in the almost uniform history of the children of wet nurses, when banished from their mother's breast and their mother's care. The particular symptoms we shall presently give in the author's words, who has described them with accuracy and clearness. Neither is this evil confined to the children of wet-nurses, it is seen more or less in the young offspring of the lowest poor in this metropolis; and wherever the habitual intemperance and violent passions of the mother convert the naturally salubrious food for the infant into a noxious aliment; it is found in a greater or less degree, in a large proportion of the cases where infants are reared artificially from an early age, whatever care and attention are bestowed; and it is met with in infants even at the natural time of weaning, if from ignorance or inattention the great change of diet be not made with sufficient precaution to all the digestive functions.

We shall now give the author's description of the disease.

"The disease which I am now to consider, and which is the chief object of the present paper, is somewhat allied to the last in its nature, and is vulgarly denominated in this part of Scotland The Weaning Brash. It is one of the most fatal of the diseases of children, and, as far as I know, it is overlooked by those physicians who have made these diseases their study.

"It is an atrophy, the consequence of weaning children too suddenly at an unfavourable season of the year.

"This disease sometimes comes on two or three days after weaning; frequently not for three or four weeks; sometimes not before five or six weeks have elapsed.

"The

"The first symptom is a purglng, with griping pain, in which the dejections are usually of a green colour. When this purging is neglected, and, after continuing for some time, there is added a retching, with or without vomiting; when accompanied by vomiting, the matter brought up is frequently coloured with bile.

"These increased and painful actions of the alimentary canal, produce a loathing of every kind of food, and naturally are attended with emaciation and softness of the flesh, with restlessness, thirst, and fever.

"After some weeks I have often observed a hectic blush on the cheek; but the most characteristic symptom of this disease is a constant peevishness, the effect of unceasing griping pain, expressed by the whine of the child, but especially by the settled discontent of his features; and this expression of discontent is strengthened towards the conclusion of the disease, when the countenance has shared in the emaciation of the body.

"In the progress of the disease, the evacuations from the belly show very different actions of the intestines, and great changes in the biliary secretion; for they are sometimes of a natural colour, at other times slimy and ash coloured, and sometimes lienteric.

"Towards the end of the disease, the extremities swell, and the child becomes exceedingly drowsy; but these I rather conceive to arise from debility than to be pathognomic symptoms. It is remarkable, in the advanced stages of the disease, that the purging sometimes ceases for a day or two, but without any amelioration of the bad symptoms; nay, I think that children decay even faster than when the purging is most violent.

"The disease seldom proves fatal before the sixth or seventh week; and in this short time I have seen the finest children miserably wasted. I have seen, though rarely, a child recovered after the disease had continued three or four months; and again, I have seen the disease cut short by death, in the second, third, or fourth week, before it had reached the acme; the sudden termination having been occasioned by an incessant vomiting and purging, or by convulsions, from the immense irritation in the bowels.

"The disease is more frequent in children who have been weaned before the eighth or ninth month, and in particular, in those who, in consequence of some accident happening to the nurse, have been weaned abruptly.

"I have not been able to determine what temperament is most peculiarly liable to this disease; but, without meaning to insinuate any necessary relation, I think it appears most frequently in those children of a lax fibre, whose constitutions, at a more advanced stage of life, might be supposed liable to the attack of strumous disorders.

"This is a disease of the autumnal months. I seldom, comparatively speaking, have seen it commence before the soltice, nor after the end of the year; and I suspect that it is most general in sultry seasons.

"As

"As it will be presently shown, this disease gives origin to a great change in the glandular system of the mesentery; and this explains how it should happen, that after it has been removed, either by medicine, or by a proper regimen, and the healthful exertions of a good constitution, it is very apt, after slight errors in diet, or from cold, to return, even after the lapse of months. A person who knows this disease, will often be able to recognise it in the very obstinate and baffling complaints of the bowels, which children have from the beginning of the second to the end of the third year.

"At the time when weaning brash comes on, the teeth are usually appearing; and, from a common notion, that a flux is wholesome during teething, the disease is sometimes allowed to make an irremediable impression on the constitution, before the physician is called.

"My attention was very early directed to this disease, from finding that it had an appropriate name among the vulgar, and yet that it was not known to those physicians whom I consulted respecting its nature. Some of them had observed a purging as a very common consequence of weaning; but they supposed that it arose from teething: Others told me, that it arose from a mesenteric enlargement in scrophulous children: And until I could satisfy myself by dissection, I rested on this latter supposition."

The appearances on dissection are important. "The first dissection which I had an opportunity of making of a child who had died of weaning brash, did not instruct me in the true nature of the disease; for the mesenteric glands were considerably enlarged and inflamed, and I still imagined that their affection might have occasioned the purging and marasmus. But in prosecuting my research, I was convinced, that the disease was an undescribed one; and that although there might, in some instances, be mesenteric obstruction, it was not necessary to the disease; that it was the effect, and not the cause of it.

"I observed, in every instance, that the intestinal canal, from the stomach downward, abounded with singular contractions, and had in its course one or more intus-susceptions; that the liver was exceedingly firm, larger than natural, and of a bright red colour, and that the enlarged gall bladder contained a dark green bile. In some dissections, the mesenteric glands were swelled and inflamed; in others, however, they were scarcely enlarged, and had no appearance of inflammation.

"These contractions and intus-susceptions were entirely of a spasmodic nature, as in the latter the contained part of the gut was easily disengaged from that which formed its sac; and in no part of the entanglement was there adhesion, or even the mark of inflammation; and the contracted portions of the intestine were again permanently dilated, by pushing the finger into them.

"These appearances led me to imagine, that the weaning brash in its confirmed state, is imputable to an increased secretion of acrid

crid bile, or rather to the morbid state of the liver, which occasions this; of which, however, I am afraid to attempt the explanation. It is proved, that there is an increased quantity of bile in the intestines, by the green dejections which are frequent in the beginning of the disease, and by the bilious vomiting."

As the cutting of teeth is an abundant source of irritation to many children, and of anxiety to all parents for great part of the first two years of the infant's life, it is natural that this should take its share in the supposed cause of the atrophy of weaned children. Nor is it easy (if possible) always to distinguish how far the symptoms of irritation may be produced, or at least aggravated, by the cutting of teeth. We think however that the author very justly lays but little stress on this cause in the present complaint; and it is of importance to determine this point as nearly as may be, since the practice of lancing the gums, we are convinced, is not quite so invariably harmless as is sometimes supposed.

The treatment of this very important disease is difficult, not so much as to what plan *ought to be prescribed*, as to that which *will be followed*.

The first and most obvious remedy would be to procure for the little sufferer the food for which it daily and hourly thirsts, *its* mother's or *a* mother's milk; but the very circumstances which at first deprived it of its natural food, will in most instances continue to operate in preventing its return to this aliment.

The food should be the most easily digestible, and in particular it should be remarked that animal food in the form of broth, jelly, &c. is much preferable to the vegetable, or at least should be largely mixed with it.

As to medicines, the author thus speaks of them: "Before I had formed the opinion of the disease which I now hold, I limited my attempts to the alleviating of the more urgent symptoms, endeavouring sometimes to restrain the purging by opiates, and at others anxious and happy to restore it again. I therefore used opiates in all ways, with aromatics; then the testaceous powders, with occasional doses of rhubarb. I tried laxatives in the beginning of the disease, and I think that they were useful. Then imagining the disease to be dysenteric, I gave ipecacuan, both as an emetic, and in small doses, mixed with prepared chalk, as an antispasmodic, to restrain the irregular action of the bowels, and certainly with some effect. Although I had some success from these remedies in the early stages of the disease, I found invariably, that when the disease had taken a firm root, it frustrated all my exertions.

"In the beginning of the disease, and even at all periods of it, when the attack is slight, I should certainly recommend a dose or two of rhubarb, to the extent of five or six grains, at the interval of two days between each dose; and that, in the mean time, the child should take half or a third part of a grain of ipecacuan powder, mixed with six or eight grains of prepared chalk, and a small portion of some aromatic powder, as cassia, every four or

five

five hours. Should there be much griping along with the purging, a glyster of mucilage of starch, with five or six drops of laudanum in it, administered at bed-time, will be attended with much advantage."

But the author speaks with more confidence of calomel, given as in other idiopathic diseases of the liver for a certain length of time, and more as a mercurial than a purgative. From the manner in which the author announces this remedy, he appears in some degree to consider it a practice as novel as it is beneficial. Of the salutary and often surprizing effects produced by this invaluable preparation in this disease, we have not a moment's doubt; but the concurring practice of the most skilful of the medical profession has so long been directed to this remedy, to the full as much in the maladies of children as in those of adults, that the testimony of our author to its value can now be only considered as an accession to a very large body of proof, and by no means as original and solitary evidence.

The volume concludes with twelve well-selected cases of this disease.

This Essay well deserves a perusal. The subject is peculiarly interesting, though it has not come within the author's plan to speak of its vast extent and the importance which attaches to it in a general point of view. Two observations we shall add, in proof of the peculiarly unfortunate situation in which (with some exceptions however) are placed the infants destined to the care of women who in their *own houses* receive them for hire; the one, that these miserable children are condemned to a most pernicious, because indiscriminate, use of opiates, in one form or other, to quiet their incessant cries of pain; and the other, that the active humanity of this metropolis has more than once been publicly directed to them, in a manner which shews the melancholy truth of all that has been represented concerning these half-abandoned infants.

The Anatomist's Vade-Mecum, &c. by ROBERT HOOPER, M. D. *The Fifth Edition, to which are now added, Anatomical, Physiological, Medical, and Surgical Questions for Students.*

THE rapid sale of this Compendium of Anatomy is, in this instance, a merited testimony to its value, and we only here notice the fifth edition, to mention the anatomical questions which make a small accession to the volume. They are 148 in number, and sufficiently well chosen, if it were an object to select just so many from the hundreds that might be asked with equal propriety. But these 148 questions, we are told, are "to be learnt by every student previous to his examination at Surgeon's Hall, the Medical Board, &c." a circumstance which attaches much more importance to them than they would otherwise merit. Does the author mean to assure the young candidate, that these will be the *only* questions asked? and that to obtain the testimonial of having been "*deliberately examined and*

and found fit and capable to exercise the art and science of surgery," the candidate may not be expected to inform the Worshipful Court of Examiners, how an hæmorrhage of an artery is to be stopped? How amputation is to be performed? How a fractured limb is to be disposed of? How a dislocation is to be reduced? None of which form a part of the 148 questions here set down. In fact, it is only in the Anatomy that the questions are equally full and select: the Surgery, Medicine, and even the Physiology, are highly defective; and in a future edition, we would advise that these be enlarged, and the plan of the questions; which is in itself useful, be confined to special objects, which set the mind of the answerer a reasoning, such as, "What is the cause of the bile regurgitating into the gall-bladder?" than merely such as "describe the heart—describe the uterus, &c."

MEDICAL AND PHYSICAL INTELLIGENCE.

[FOREIGN AND DOMESTIC.]

Dr. Mœrker, of Marienwerder, relates a curious case, in which a solution of emetic tartar was injected into a vein for the purpose of removing a piece of beef that had stuck in the fauces. A man, sixty years of age, taking beef for his supper, which for want of teeth he was not capable of properly chewing, had a piece of it stuck so fast in his throat, that all attempts to bring it up or down were ineffectual. Mr. Knopf, a surgeon, being sent for, found the man in a most deplorable situation; he could hardly breathe, his face was tumid and blue, and he was very near being choaked. After having uselessly endeavoured to draw the foreign body up or to push it down, the surgeon remembered reading in the late Mr. Schmucker's Surgical Cases, of an injection of emetic tartar into the veins having been practised in a similar case with unexpected success; and accordingly, as no time was to be lost, he determined to try the same expedient. To this end he dissolved four grains of emetic tartar in half an ounce of warm water, and having put the solution into a small syringe provided with a long tube, he injected it into the vena mediana of the right arm; having previously stopt the opening of the vein with his finger, and loosened the bandage round the arm, he directed the tube of the syringe upwards; the injection was made slowly, and the liquor had the temperature of the blood. About a minute after this operation the man turned sick, and soon after he began to vomit violently, by which means he brought up a great quantity of pituita and at the same time the piece

piece of beef, which was swollen to the size of an egg. The life of Mr. K's patient was saved also by the same means; and the surgeon adds, that after the first vomiting had been over, no other vomition or dangerous symptom ensued.

In No. 3 of the Journal de Medicine, Chirurgie, &c. de Montpelier, the following remarkable case of the effects of Galvanism in hydrophobia is recorded. A man, who had been bitten by a mad dog in the middle finger, complained about a month after of pains in the arm and back, but particularly in the finger. On applying the actual cautery the pains disappeared, but some days after returned, and were attended with symptoms of hydrophobia; the patient could not bear the sight of water, and shewed a great inclination to bite. Under these circumstances the patient was exposed to the action of Galvanism; and as he could not suffer the sight of water or any other lucid object, a Galvanic pile of fifty strata of silver, zinc and pasteboard plates was erected in the adjoining apartment; oblong pieces of blotting paper, which were moistened, served as conductors, and on which the patient was placed with his feet naked. At the moment he opened his mouth to bite, one end of a conducting arch was introduced, the other end of which was in connection with the pile. The patient suffered a great deal after each operation, and found himself so fatigued that he was not able to stand. On this account he was laid on the ground, and the application of Galvanism continued; during which time a perspiration came on. It was intended to repeat the operation the following day, but the patient finding himself well, would not undergo it a second time. A few days after some symptoms re-appearing, he willingly suffered himself to be again galvanised; which being done, he never afterwards perceived any symptom threatening a relapse of his former complaint. It is to be remarked that this person, who was naturally very irritable and nervous, felt for above two months after the Galvanic operation, a particular sensation in the body, which extended up to the shoulders.

Prof. HUFELAND has found the tinctura cantharidum a most excellent remedy in obstinate cases of hooping cough. It is particularly indicated when the disease is of a more chronic character, attended with atony. It may be given with mucilaginous and bitter remedies, or sometimes with bark, in a dose of from three to eight drops four times a day; but in some cases it is necessary to increase the dose by degrees till a slight burning sensation in making water is perceived. He has likewise found it of great use when united with opium, the effect of which is much increased by this combination.

The same gentleman relates the following case of incarcerated hernia, in which he employed the fox-glove with great success. He was called to a young plethoric woman, who had suffered two days

days an incarcerated hernia inguinalis, attended with vomition, costiveness, fever, and inflammatory symptoms. She was bled, put into baths; clysters were applied and antispasmodic fomentations, and saline mixtures with oil and opium were prescribed, but all to no purpose; by the opium the fever and heat were considerably increased, and it seemed to be contraindicated by the inflammatory symptoms. He therefore determined to have recourse to the digitalis, which though a strong narcotic and antispasmodic remedy, has the property of acting without heating, and even diminishes the action of the arterial system. He accordingly ordered *one* grain to be taken every three hours with an oily emulsion, and after the patient had continued this medicine for about twenty-four hours, the rupture could be easily replaced by the operation of the taxis, which before had been attempted in vain.

It has been observed by Dr. WELPER of Berlin, that the bodies of persons who have been poisoned with arsenic, frequently withstand putrefaction and are changed into the state of mummies. If this fact be confirmed by more experience, it might serve as a sign for discovering previous arsenical poisonings on dead bodies long after death, and it would be worth while to examine the chemical action of that metal on the organic body. At the same time it would lead us to the discovery of an easy and cheap method of preserving dead bodies against putrefaction, or of making mummies.

The Lectures of the celebrated Anatomist BOGER upon the Diseases of the Bones, have been reduced to a systematic Treatise by RICHERAND, and will shortly appear in the English language.

Dr. KINGLAKE's new work, entitled, A Dissertation on Arthritis or Gout, exhibiting a new View of the Origin, Nature, Cause, Cure, and Prevention of that afflicting Disease, illustrated and confirmed by a variety of original and communicated Cases, will be published in the course of the ensuing month.

Dr. TROTTER's Essay, Medical, Philosophical, and Chemical, on Drunkenness, and its Effects on the Human Body, is in the press, and will be published in a few weeks, being a comment on the Inaugural Dissertation de Ebrietate, &c. Edinb. 1788.

Dr. FOTHERGILL, of the Western Dispensary, has in the press a Treatise upon a very singular and painful Affection of the Nerves of the Face, called by certain French Writers and some others, Tic Douloureux.

Speedily will be published, Medical Sketches of the Expedition to Egypt by the Army from India, by Mr. M'GRIGOR, the superintending Surgeon of the Indian Army.

The Truss applied.

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